ENGINEERING NEWS-RECORD

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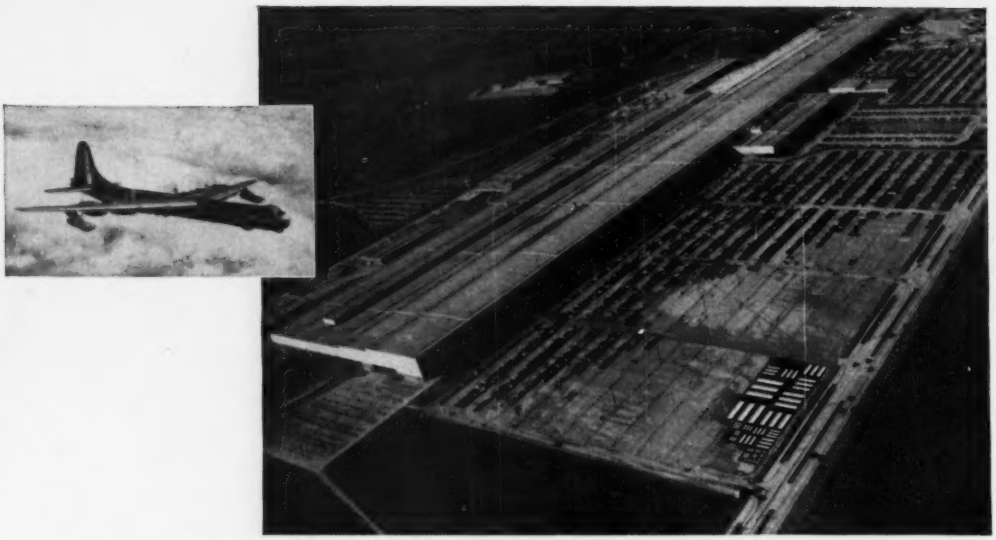

IN THE WORLD'S LARGEST INTEGRATED AIRCRAFT PLANT OVER 1800 TONS OF *BYERS WROUGHT IRON PIPE* *DEFENDS AGAINST CORROSIVE ATTACK*

In this modern B-36 bomber plant, operated by the Fort Worth Division of Consolidated Vultee Aircraft Corporation, designers took decisive steps to forestall excessive maintenance and repair by specifying genuine wrought iron for a number of corrosive services. More than 1800 tons of Byers Wrought Iron pipe was used to "maintenance-proof" raw water lines, hot and cold potable water supply lines, steam supply and return lines, chilled and condenser water lines in the air conditioning system, and water mains of the sprinkler system. The Austin Company served as engineers and builders of the project; C. Wallace Plumbing Company, Dallas, Texas, were the mechanical contractors.

The importance of selecting the most durable material is obvious with today's cost of maintenance so high. Byers Wrought Iron has been successfully used in dozens of varied services, and its ability to serve longer, at lower cost-per-year, has been convincingly demonstrated in plants all over the country. Whenever you're considering building or repair, you'll find it profitable to investigate this time-tested material.

Our bulletin, WROUGHT IRON FOR PIPING SYSTEMS, discusses the corrosive conditions encountered in many building services, and the success of genuine wrought iron in withstanding them. We'll be glad to send you a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N. Y.

WHY GENUINE WROUGHT IRON LASTS

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2 powerful reasons

3 powerful reasons

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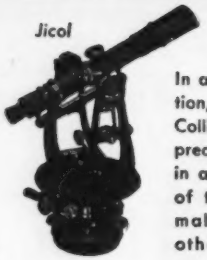

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 147 AUGUST 30, 1951 No. 9

WALDO G. BOWMAN
Editor

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26

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Winston Brothers have used Northwests for years on every class of work from easy digging to the hardest kind of rock excavation.

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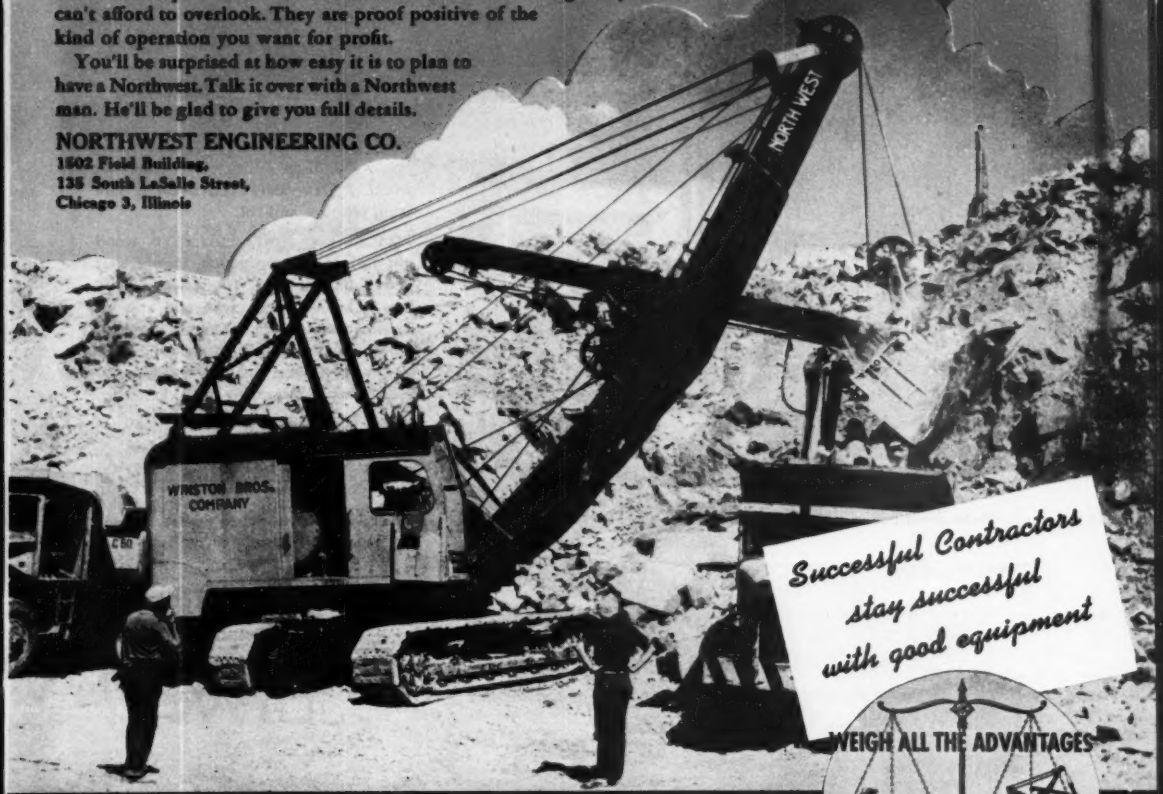

Successful Contractors stay successful with good equipment

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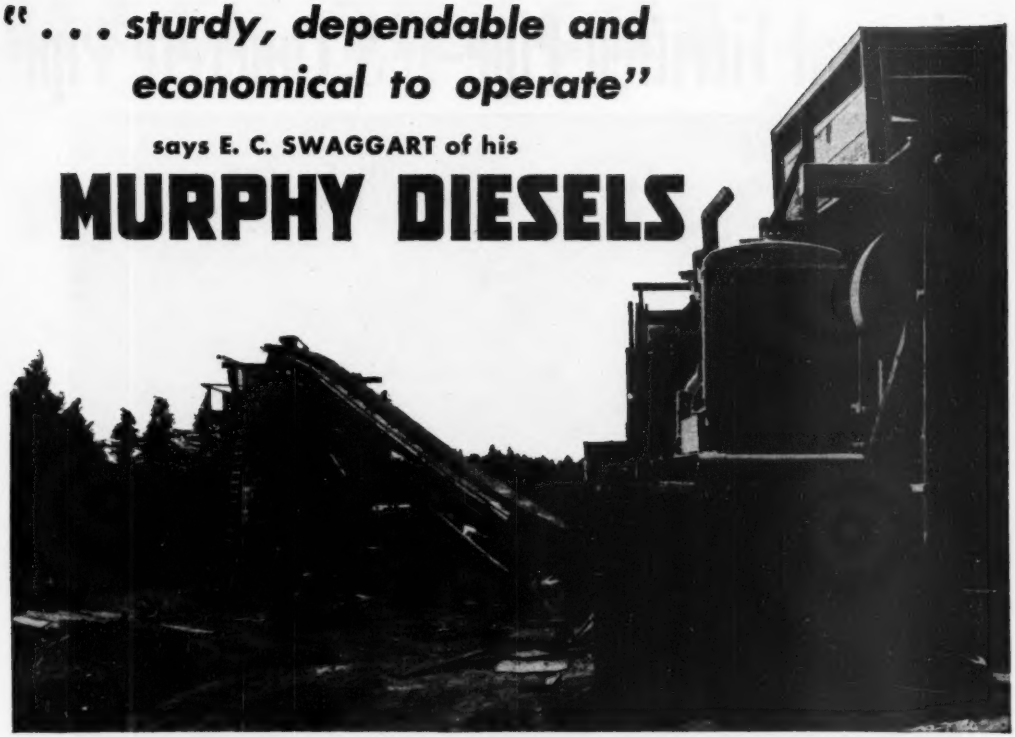
"... sturdy, dependable and economical to operate"

says E. C. SWAGGART of his

MURPHY DIESELS



● ONLY the user can be the final judge of the merit of a diesel engine . . . and that's why we're so proud of what Murphy Diesel owners tell us about their engines. The remarks of E. C. Swaggart, a general contractor of Eugene, Oregon, are typical. He recently wrote as follows:

"I have six Murphy Diesel Power Units powering my crushing plants and one Murphy Diesel Generator Set. I have been using Murphys for five years and have always found them sturdy, dependable and economical to operate. For these reasons, and because of Murphy's fast action, if I need another power unit for my rock plants, I would buy a Murphy."

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Murphy Diesel's ability to deliver more power, greater fuel economy, greater dependability and longer life are the result of an exclusive combination of advanced design features. These include "true" diesel operation . . . unit fuel injection . . . four valves per cylinder . . . hydraulic servo-type governor . . . and many others. Full details are given in the booklet *"10 Questions to Ask a Diesel Engine Salesman"*. Ask your Murphy Diesel Dealer for a copy or write direct.

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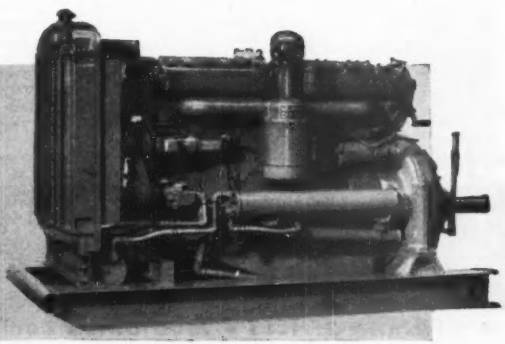
Heavy duty power

for all services

Murphy Diesel engines and power units are made in sizes from 90 to 226 H. P.; generator sets from 60 to 140 K. W.



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ALWAYS PRICE-RIGHT

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stay on the job

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Built for dependability, CP PORTABLE AIR COMPRESSORS have a well-earned reputation for staying on the job and cutting operating costs.

Providing "600 cubic feet of air on wheels," the Diesel-driven CP-600, powered by a six-cylinder Caterpillar engine and with a V-8 compressor, is notable for smooth, economical performance.

It is fuel-thrifty because the gradual speed regulator adapts engine speed to air demands, also minimizing engine wear and reducing maintenance.

Other features of this two-stage, air-cooled compressor include pressure lubrication, large Simplate valves and self-adjusting clutch.

CP Portable Compressors are available in gasoline-driven models from 60 to 315 cfm actual capacity, and in Diesel-driven models from 105 to 600 cfm capacity.

Write for detailed information.

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Raymond MAKES 5 TYPES OF CONCRETE PILES

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3. PIPE STEP-TAPER . . . 4. COMPOSITE
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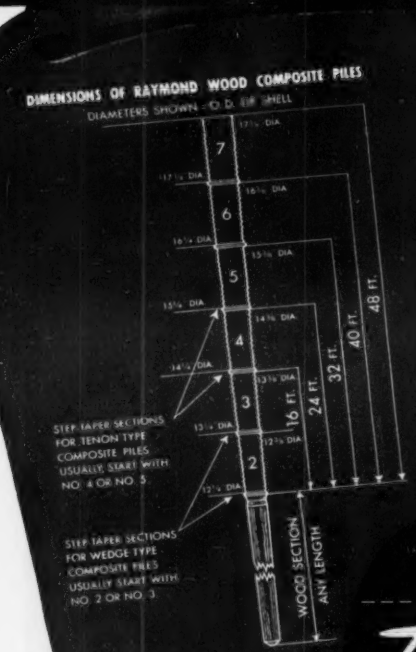
Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning; borings and soil investigations; waterfront construction and harbor and river improvements; shipbuilding facilities; also cement-mortar lining of water, oil, gas and chemical pipelines, 4" to 144" diam's., by Centriline Corp., a Raymond subsidiary.

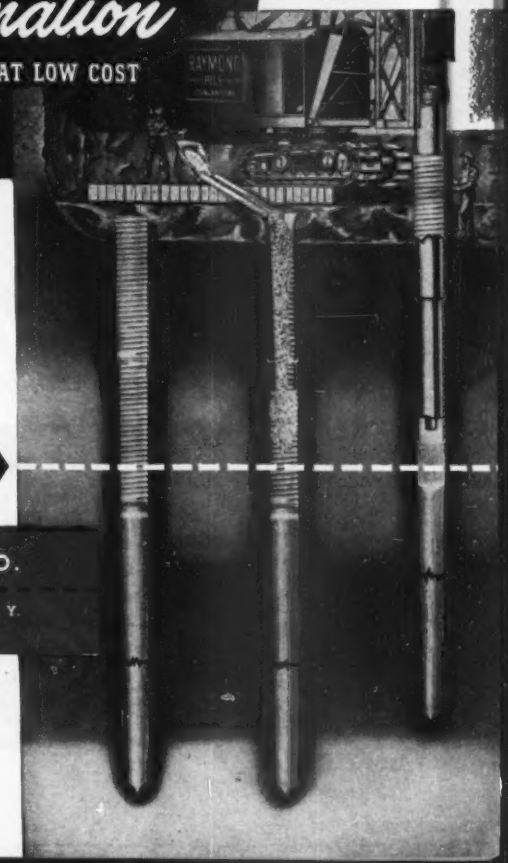

DIMENSIONS OF RAYMOND WOOD COMPOSITE PILES
DIAMETERS SHOWN O. D. OF SHELL
STEP-TAPER SECTIONS FOR TENON TYPE COMPOSITE PILES USUALLY START WITH NO. 4 OR NO. 5
STEP-TAPER SECTIONS FOR WEDGE TYPE COMPOSITE PILES USUALLY START WITH NO. 2 OR NO. 3
WOOD SECTION
ANY LENGTH
16 FT.
24 FT.
32 FT.
40 FT.
48 FT.

4. COMPOSITE PILES

The right combination

FOR LONG LENGTH AT LOW COST

Right, driven wood pile is being followed down by pile shell of concrete section. Center, complete pile driven to resistance, pile shell is being filled with concrete. Joint, wedge-type with sealing ring, is below ground water level. Completed pile is shown at left.



Raymond Composite Piles are used for economy and long length. The concrete upper section extends from the permanent water table up to the underside of the footing, thus eliminating the expensive excavation, sheeting and pumping often required with wood piles.

Raymond Composite Piles have solved many deep foundation problems permanently and at minimum final cost. We shall be glad to advise you, without obligation, whether they are suitable for your project.

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RAYMOND PILES MAINTAIN DRIVING RESISTANCE

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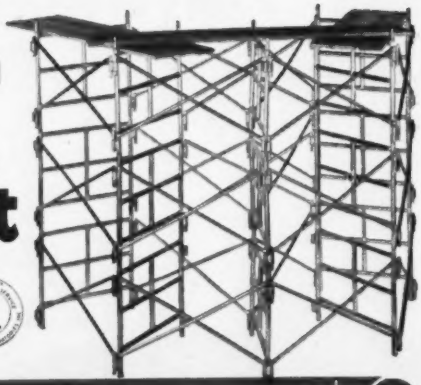
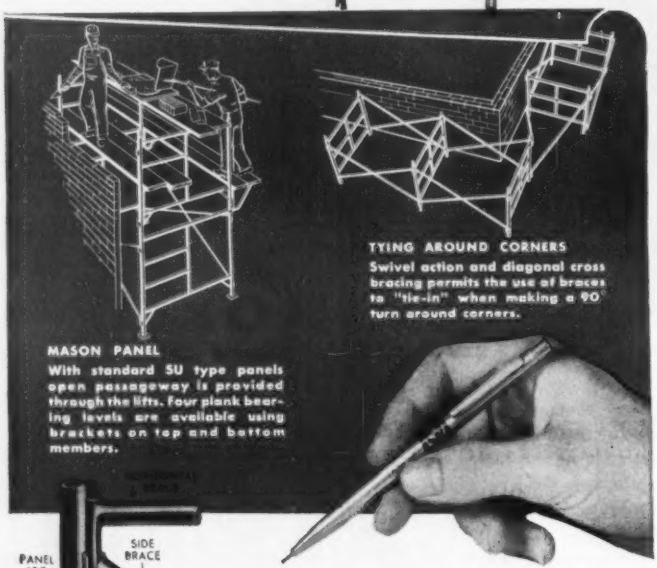
PLAN your SAVINGS with UNIVERSAL Ezebilt SCAFFOLDING




TYING AROUND CORNERS
Swivel action and diagonal cross bracing permits the use of braces to "tie-in" when making a 90° turn around corners.
MASON PANEL
With standard SU type panels open passageway is provided through the lifts. Four plank bearing levels are available using brackets on top and bottom members.

No Bolts! No Nuts! No Loose Parts!

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NEWS BRIEFS

• **Advance notice desired**—Twenty years ago, Indianapolis included in its street repair specifications a clause requiring a 36-hour notice before any repair job was started. Now, however, City Engineer William R. Hunt has notified street paving contractors that 72 hours advance notice will be required. This action came following a very bad traffic jam when a contractor repaving Michigan Street between New Jersey and East closed the street just at the start of the evening rush hour. Unaware of the closing, police had made no plans for re-routing traffic. The jam lasted nearly 90 minutes, and transit vehicles of the Indianapolis Railways, Inc., were thrown off schedules as much as one hour. Hunt said the 36-hour notice clause has been disregarded for years.

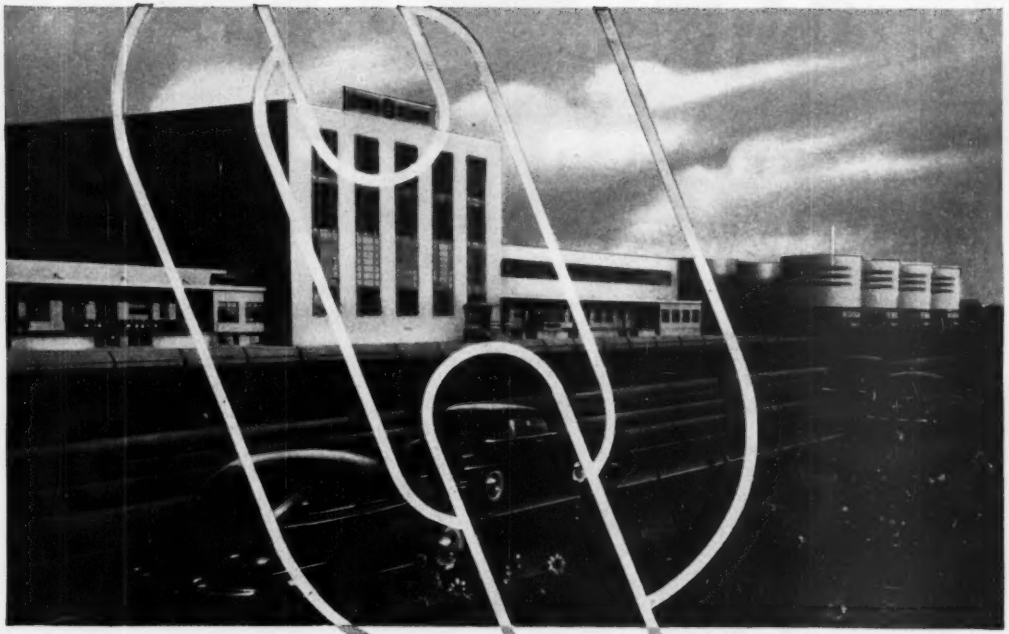
• **Scrap steel drive**—A campaign for the collection of scrap steel in Boston, Mass., has been announced by Mayor John B. Hynes, who has named Public Works Commissioner George C. Hyland to serve as co-ordinator of the drive, to be undertaken at the request of the National Production Authority to help defense. A survey will be made of all municipal buildings, warehouses and storage properties for the badly needed metal.

• **Asphalt wanted**—In Jacksonville, Fla., Street Commissioner Edward Acosta received a letter written in a childish scrawl, which said in part: "A few weeks ago I got a pair of roller skates and will you put asphalt on our street. . . ."

• **Stack within a stack**—How do you build a new smokestack on the same spot as an old one that you want to keep in operation? Very simple, say officials of Kaiwiki Sugar Co. in Hawaii, provided, that is, that the new one is to be bigger. In 14 days' work they built a new stack right around an old one. It begins 15 ft. above the bottom of the old cone, has an inside diameter 15 in. greater and is 12 ft. higher. It will be more efficient and give a better control of draft. During the shutdown season the old stack will be dismantled from the inside by cutting a hole in the bottom of the cone to get the old material out.

• **Careless workman wastes water**—Summerland, Calif., 10 mi east of Santa Barbara, began getting 24-hr water service again recently after the supply in Toro Canyon Water Co.'s 210,000-gal storage tank was replenished

(Continued on page 15)



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Newest link of PROGRESS

NOW!...The *newest*...*finest*... *most modern* plant for compounding and packaging lubricating oils

Month by month you see the proof piling up of still more Cities Service growth... strength . . . progressiveness. Now the latest Cities Service facilities have been added in Chicago's Cicero district. Here a completely modern 25-million-gallon plant is in full operation today, to serve you with lubricants of characteristic Cities Service quality.

The size of this complete plant...its rail and water transport advantages...and the excellence of its output signify the progress Cities Service is attaining throughout its marketing area. Cities Service has been progressive and will remain so, always striving to provide its dealers...its customers...with the finest petroleum products made.

CITIES SERVICE

DOUBLE DUTY

28 m.p.h. for West

D Tournarocker gets load of big-chunk rock. Rugged 3-layer, steel-billeted body stands up well under heavy loading shocks . . . requires minimum patching and repairing.

VERSATILITY for extra profits

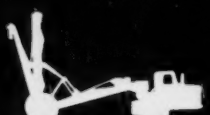
122 h.p. "D" prime mover powers a 10-ton flatbed and a 7-ton crane in addition to the rear-dump Tournarocker and 7-yd. Scraper. Each of these interchangeable hauled units may be bought, as needed, at about 25% of the original total price. Prime mover change takes only a few hours.

LETOURNEAU LET EQUIPMENT

9-TON TOURNAROCKER
Capacity 10 yds. heaped. 12'4" turn radius. 7' x 11' loading target. Rear dump.

7-YD. TOURNAPULL
Self-loads 7 on; works in pusher fleets. Bulldozer or snow plow mount on front.

10-TON TOURNAHAULER
Big 21' x 8' flatbed loads itself with overhead hoist. One-man operated.



7-TON TOURNACRANE
Lifts 7 tons up to 29', reaches 21'. Electric control of hoist, boom and carriage.

"D" Roadsters pay off Virginia contractors

2-wheel prime movers power scrapers for dirtmoving . . . rear-dumps for rock hauling

CASH, SHAVER & GREEN, Madison, West Virginia contractors, handle both scraper dirt and shovel rock on road jobs throughout the East. They keep equipment inventory to a minimum and still maintain maximum job efficiency by making their 2 D Tournapull prime movers do "double duty." These 2-wheel, 122 h.p. prime movers are used both with 7-yd. electric-control Carryalls to load, haul, and spread dirt, and with interchangeable 9-ton rear-dump Tournarockers to haul and dump shovel-loaded rock. For example . . .

2 Tournarockers outhaul 3 dump trucks, 2 to 1

Right after completing a dirt job on a Clay County secondary road near Charleston, W. Va., Cash, Shaver & Green had to move 37,000 yds. of rock to construct a bridge approach on U. S. 35 near Leon. They simply uncoupled the scraper units from the Tournapull prime movers . . . hooked up the Tournarockers . . . used these two 9-ton Rear-Dumps to haul 25,900 yds. (70%) of total yardage. Three 6-ton trucks moved the other 11,100 yds. . . . 30% of the total. In other words, the 2 D Tournarockers, with capacity equal to that of the 3 trucks, outhauled them, 2.3 to 1!

Move 100 pay yards hourly on 1800' cycle

In typical operation, Tournarocker was shovel-loaded with 5 pay yards of rock in 90 seconds . . . highballed 900' through traffic, up a 9% grade, and down 4% to 12% grades . . . completing the 1800' cycle in 5 minutes. That's 10 trips per 50-minute hour for each D Tournarocker . . . 20 loads hourly for both units . . . and a combined hourly output of 100 pay yards.

With over 1900 hours of both hauler and scraper experience with these rigs, Victor Green, Vice Pres. and Manager of the firm, says, "The D Tournapull is an *excellent* machine, *either as a 'Rocker or Scraper* unit. Its maneuverability and versatility make it one of the best machines in its class."

Ask your LeTourneau Distributor to show you why. Call or write him today!

With 4-wheel, multiple-disc air brakes (2822 sq. in. total braking surface) and instant electric power steer, operator confidently works rig at top speeds through traffic and up and down slippery 4 to 12% grades.

Tournarocker, Tournahauler—Trademark
Tournapull, Carryall, Tournacrane—Trademark Reg. U. S. Pat. Off. R255

R. G. LeTOURNEAU, INC., Peoria, Illinois

HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

In Janesville, Wisconsin maintenance costs are lowest on CONCRETE STREETS

ACCORDING TO LATEST available figures, covering 12 consecutive years, it costs only $39.16 per mile per year to maintain the concrete streets in Janesville, Wisconsin. The average annual maintenance cost per mile for the three other types of pavement ranged from $136.85 to $189.97—3½ to 5 times as much as concrete pavements!

Reports Acting City Manager Joseph Lustig, "The low cost of maintaining our concrete streets is especially significant because most of the heavy local and arterial traffic travels over our concrete streets. Concrete streets in the residential sections laid 25 years ago show but little wear, are easily cleaned and have proven very satisfactory indeed."

The experience of Janesville with the outstanding service and economy of concrete streets is repeated in hundreds of communities across the nation. Concrete, which usually costs less to build than other pavements of equal load-carrying capacity, also costs far less to maintain and it lasts much longer. That results in ***low annual cost,*** the real measure of pavement economy.

If you would like more information about this ***low-annual-cost*** pavement, write for helpful free booklet, *"Design of Concrete Pavements for Municipal Streets."* Distributed only in the U. S. and Canada.

●

Upper photo: recent view of Milton Avenue, part of State Route 26, built in 1924. Lower photo: same street in 1926.

PORTLAND CEMENT ASSOCIATION
DEPT. A8e-17, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

News Briefs . . .

sufficiently to fill customers' water demands. The water company turned the supply off during the day to increase the level in the tank after a workman accidentally left a valve open and the contents drained into the sea. The drastic rationing enabled the company to increase the tank's water level by 4 in. a day. Many residents complained that the rationing not only created an inconvenience but also wasted water since faucets had to be left open for almost an hour after the supply was turned on in order to clear out sediment. Although the water had an unpleasant taste and appearance, it contained no health-menacing bacteria, according to the health officer.

• **Still fighting pollution**—Orders to quit operating strip coal mines until given a permit for acid mine drainage have been issued to two more mine operators by the Sanitary Water Board of the Pennsylvania Department of Health. The Clean Streams law specifies that it is unlawful to open or reopen a coal mine without a permit from the board. At the same time, the board notified 13 other operators that they are violating conditions of the permit granted for their operation and it required that the violations be corrected.

• **Bridge for sale**—The last remnant of the old Hetch Hetch R. R. in California—Six Bit Bridge spanning Six Bit Gulch—is going on the block. The 700-ft. bridge contains 250 tons of steel, but whoever buys it will have to build a road to get to the site as the railroad's rails have already been sold and removed. The prospective seller is James H. Turner, San Francisco's utilities manager.

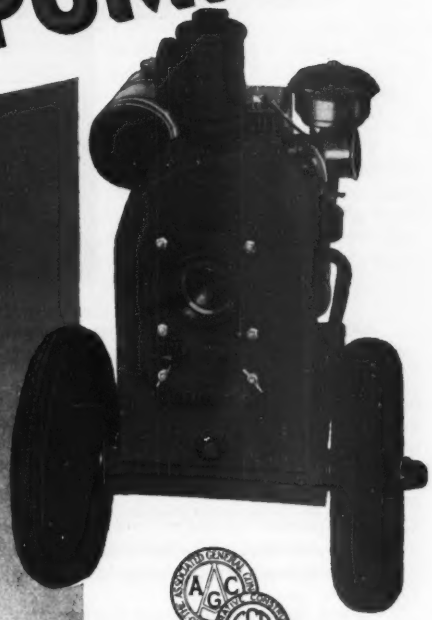
The Cover

Six months of excavation on the site of Los Angeles' Pershing Square Park have produced the space for the city's first underground parking garage. Palm trees, flower borders, benches and other park appurtenances will go back in place at street level when the structure is complete.

The garage will be a three-story (all underground) structure, 650 x 350 ft, and will accommodate nearly 2,000 cars. Cost will be in the neighborhood of $5 million, supplied by private funds of City Park Garage, Inc.

Contractors are Ford J. Twaits Co., Morrison-Knudsen Co., Inc., and T-S Construction Engineers Inc. Design is by Stiles Clements Associated Architects and Engineers, with Murray Erick as structural design consultant.

best for the job
• SELF PRIMING
• CENTRIFUGAL
McGOWAN PUMPS



These rugged McGOWAN all welded steel pumps are lighter, yet stronger, more durable than any you've ever seen. They feature — automatic priming • non-clogging impeller hardened wear plates • large access plates • tested and trouble free shaft seals.

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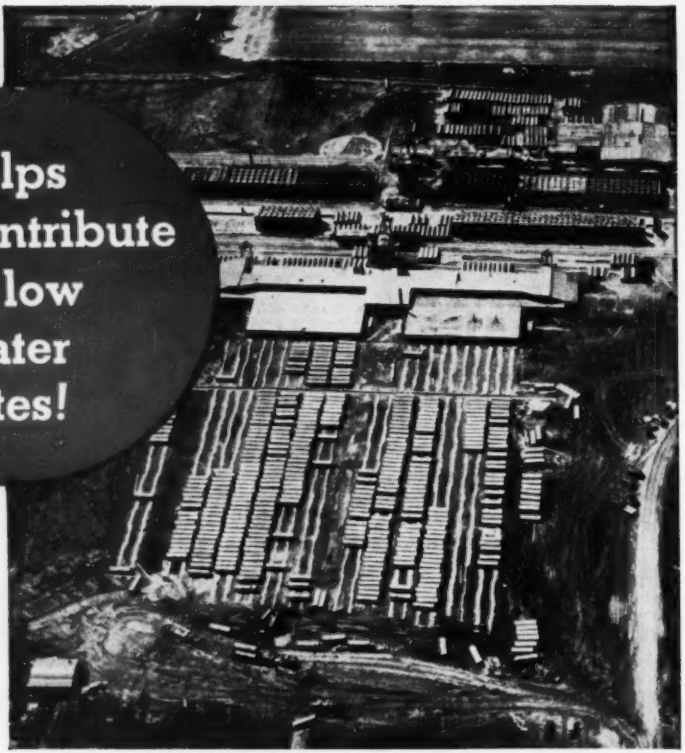
LOCK JOINT PIPE helps contribute to low water rates!



A temporary Lock Joint pipe plant at the site. Use of local labor and materials returns to the community a large part of the pipeline cost.

Although a modern water supply system represents a sizeable investment, sound engineering makes it possible to keep water rates at a minimum.

Knowing this, economy-minded water supply engineers specify Lock Joint Reinforced Concrete Pressure Pipe for mains of 16" or larger. Lock Joint's low initial cost, its long life, its exceptionally high carrying capacity and its negligible maintenance cost assure the utmost service for the consumer's dollar.

Water works officials who have installed Lock Joint pipe lines point to these lines as the most economical in their entire systems.

We shall be glad to discuss your requirements. Simply write or call our nearest office.

Lock Joint's easy installation means low laying cost.

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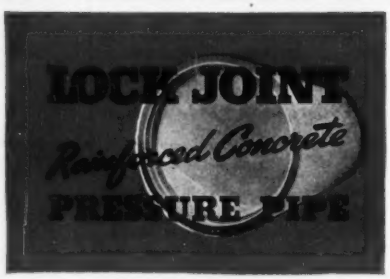
BRANCH OFFICES: Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. Wichita, Kan. • Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. Oklahoma City, Okla. • Tulsa, Okla.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.



THE CONSTRUCTION WEEK

WHO PAYS FLOOD DAMAGES—II—The charges were hot and heavy, but the action was still cool on payment for damages sustained in the recent Midwest floods (ENR Aug. 23, p. 17). While two Senate committees (appropriations and public works) scheduled hearings on legislation, President Truman and state governments fired a heavy barrage of charges. Said Truman: State governments have done "absolutely nothing." Said Missouri's Gov. Forrest Smith: "Nobody's asked us to," and added that he is prepared to make recommendations for flood relief when his legislators get back to work Sept. 10. Meanwhile, flood-damaged areas are making a spectacular recovery on their own—in Kansas City, nearly half the 83,000 workers are back at jobs washed out by the flood; the airport is restored to full service; municipal services are nearly normal.

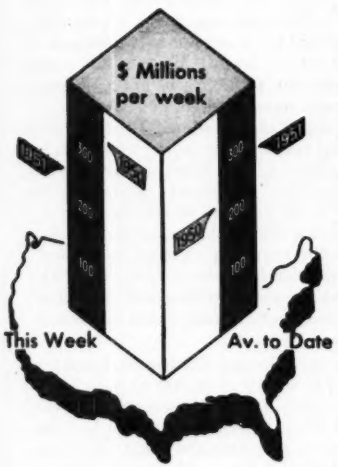
HIGHWAY SETBACK—Sharp trimming of steel allocations for highways is slowing progress on $220 million of contracts now under construction. Third-quarter allotments were issued too late to place mill orders for August-September deliveries, and those allocations had to be revalidated for fourth-quarter orders. What is worse, the revalidated steel orders have to come out of the fourth-quarter allotment, which is even smaller than the third-quarter allocation.

PROTEST ON TOLL CRACKDOWN—Maine's Turnpike Authority —smarting under an Office of Price Stabilization order to reduce tolls on its Portland-Kittery superhighway—will carry its fight against the order to OPS chiefs or even higher if necessary. The authority had boosted its rates from 60 cents to 75 cents, when the Maine OPS office declared the hike violated ceiling price regulations, and forced reduction of tolls to the original 60 cents. MTA did as it was told, but promised appeal on the ground that its business isn't subject to OPS regulation.

ROAD IMPROVEMENTS NOT ESSENTIAL—There will have to be a change in thinking of mobilization officials before highways can get a larger slice of the steel supply. Manly Fleischmann, head of DPA and NPA, told Public Roads Commissioner Thomas H. MacDonald and President James A. Anderson of the AASHO that neither he nor Charles E. Wilson, chief mobilizer, consider highway modernization and reconstruction essential to national defense—with some few exceptions—under present circumstances.

BASIN STUDIED AT VANCOUVER—A project to create a huge fresh-water basin at the head of Vancouver, B. C. harbor for ship repairing and log booming is being studied by British financial interests. The project envisions a dam and a series of locks at 2,000-ft wide Second Narrows on Burrard Inlet, cutting off the upper part of the inlet, some five miles long, and its north and south arms.

SPLIT DESIGN—To speed work on its defense projects, Navy engineers are now contracting design work in two steps: First developing design criteria and schematic drawings (to develop the equivalent of Corp of Engineers survey reports); second, detailed design. Navy claims the two-step contract gets work started faster, since first step work can be done before Congress appropriates money for the entire job.



Contracts by type of work

	This Week	Cumulative 35 wks 1951	1950	% chge
Waterworks	$1.7	$150.0	$155.0	−3
Sewerage	2.7	213.9	180.3	+19
Bridges	3.9	222.5	248.6	−10
Highways	27.5	807.8	889.2	−9
Earthwork, Waterways	2.3	354.1	313.2	+13
Buildings:				
Public	40.2	1,572.6	1,120.4	+40
Housg., pub.	2.8	551.6	196.3	+181
Housg., priv.	57.1	1,334.4	2,451.7	−46
Commercial	14.0	464.8	668.4	−30
Industrial	85.2	2,876.8	908.3	+217
Unclassified	20.0	1,258.8	873.5	+44
Total	**257.4**	**9,807.3**	**8,004.9**	**+23**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost	Aug. '51	542.78	260.91	113.78
Bldg. Cost	Aug. '51	400.07	216.26	113.72
Volume	July '51	665	270	192

(Other Business News on p. 72)

Inland's interest in your steel problems does not stop at our shipping dock.
Your scrap is needed by the steel industry for national defense.

"Let's try changing the blanking direction", said Cliff

Recently, a large automobile manufacturer was concerned with results of a difficult deep drawing operation . . . the fabrication of steel oil pans. These pans were made from Inland's fully aluminum killed cold rolled steel sheets. For six months, these sheets had been ordered to a thickness of .048" and cut to length 35¼" x 43"—and breakage had run to 3.92% of approximately 36,000 oil pans manufactured.

When Cliff Baker*, one of Inland's mill representatives, was given the problem, he suggested changing the blanking direction—inserting sheets in the stamping machine at right angle to the previous direction.

This meant a simple change in the ordering procedure. The customer changed his dimensional specification for these sheets to 43" x 71" so that the direction of rolling and the subsequent direction of steel grain would conform to this suggested practice.

Result: In the following six months, breakage was reduced to 0.75% of 30,000 oil pans fabricated. The number of oil pans scrapped was cut from over 1,400 to approximately 230 in these two six-month periods! INLAND STEEL COMPANY, 38 South Dearborn Street, Chicago 3, Illinios.

*Not actual name

CONSTRUCTION TRENDS

POPULATION GROWTH: GOOD FOR CONSTRUCTION

The U. S. population is still rising fast; very much faster than the experts expected. That fact is of first-rate significance for every construction man who wants to study the future of his business.

The population has grown an estimated 3.6-3.7 million in the 17 months since Census Day, 1950. Coming on top of the huge increase during the forties, this growth puts the total population well over 154 million, some 23 million larger than it was in 1940.

No one knows how long the present rate of growth will continue. It could slow down abruptly. Or it could go on for some years to come. But two facts about the growth are clear: It has completely surprised most of the "experts" on population trends. And it is an important—and favorable—development for construction.

• **Stumping the Experts**—This huge growth has astounded the experts. Back around 1940, they were saying that the population was beginning to level off; that the rate of growth would be drastically reduced during the next couple of decades.

With this forecast in their minds, economists and businessmen began to discount population growth as an important force behind future expansion of industry. They began making their plans and forecasts on the assumption that a growing population was virtually a thing of the past.

But the experts were proved wrong in the early '40s. The rate of growth didn't drop, it doubled. Population grew only 7.2% in the 1930's, 14.5% in the next ten years. And it's still going up, at a rate that would raise the population by another 19% if it were maintained between now and 1960. That would bring the total to about 180 million.

Wartime and postwar experience has forced the experts to revise their whole set of ideas about population. They are a lot more cautious about predicting future trends than they used to be. Recent government projections of the probable size of the U. S. population in 1960 range from a high of over 179 million, assuming low mortality and high birth rates, down to barely more than 161 million. The Bureau of the Census points out that even these projections might be wrong, in spite of the huge leeway they allow.

• **Boost for Construction**—Population trends can make construction men revise their thinking, too. Even if the current rate of population growth should drop abruptly—which is possible—the huge postwar increase will help support construction for years into the future.

Population growth has already been felt in some fields of construction. Pressure from growing families was one force behind the postwar boom in housing, which in turn raised needs for sewers, streets and other public and private facilities. Constantly rising enrollment in the public schools is forcing communities to make ever greater additions to their school-building programs.

These are the main early effects of the growth in population. But the biggest effects will come in the long run. When today's children become adults, they will add to the demand for all kinds of construction, from water systems to industrial buildings.

• **The Outlook**—**A growing population does not, of course, guarantee good business at any given time. The demand for construction generated by the huge postwar growth in population may be deferred by recessions or, as it is now, by a period of mobilization or war. But this demand should play a key part in any long-range plans made within the construction industry—because it is sure to be felt sooner or later.**

A future Trend will go into the effects of population growth in more detail.

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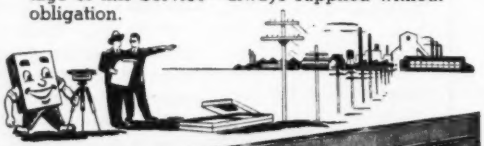
Universal's Field Service Engineers are always available to give you on-the-job assistance to help you get maximum value and utility from Universal Products. When you encounter a difficult forming problem—a call to the Chicago Office—or any of the 10 Universal Branches—will bring a specialist to your job in a few hours. Builders everywhere have taken advantage of this Service—always supplied without obligation.



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- NEW YORK, N. Y., 51 E. 42nd St.
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Service Wherever You Build...Coast-to-Coast

Prestressed concrete ready to use

PRESTRESSED CONCRETE has left the laboratory and is now ready for use in the United States wherever its unique characteristics make it suitable. That was the inescapable conclusion from the First U. S. Conference on Prestressed Concrete, held at the Massachusetts Institute of Technology two weeks ago. Moreover, as a result of the interchange of information that took place and of the personal contacts made, the meeting should have a lasting salutary effect on development of prestressing.

Already, progress in prestressing in the U. S. is more substantial than is generally realized. Speakers at the conference referred to hundreds of prestressed tanks and silos of up to 200,000 bbl capacity, of thousands of miles of prestressed pipe of 12 to 84-in. dia, and of dozens of prestressed bridges and buildings. Also, several highway officials announced that bids had been taken recently for new bridges of prestressed concrete (for example in Texas, Massachusetts, Michigan, Tennessee and Pennsylvania, to mention a few).

Nor have the seekers for better prestressing techniques been idle. Technical papers made clear that American engineers and contractors are aware that all European prestressing methods are not directly applicable here, with the consequence that much research has been focused on procedures more suitable to U. S. construction. The conference learned of rapid progress being made in this direction—toward use of factory-assembled wire cables, development of lower cost end anchorages, adaptation of concrete-block manufacturing techniques, and improvements in prestressing jacks.

The question is, "Can the gains made at this conference be consolidated, and further progress registered before the inspiring effects of the meeting wear off?" Several steps were taken that seem to warrant an affirmative answer:

1. Massachusetts Institute of Technology decided to publish the papers that were presented.

2. A resolution was unanimously approved to urge the American Concrete Institute to prepare much-needed design criteria as soon as possible.

3. A committee composed of representatives of the organizations that sponsored the conference was appointed. It will plan a second conference and take whatever steps seem desirable to extend the good work started at the first conference.

4. Plans were disclosed for a sufficiently large number of new prestressed structures to lend confidence to engineers who have hesitated to use the new type of construction because of its novelty in this country.

Little was said at the conference, however, to dispel a widespread misconception that prestressing is merely a means of obtaining more liberal working stresses for reinforced concrete. More emphasis could well have been placed on the fact that prestressed concrete is an entirely different material, which can use the strength characteristics of both steel and concrete much more effectively.

The construction industry owes a debt of gratitude to the speakers at the conference for making available information that they had obviously developed at substantial expense to themselves or the companies they represent. Much credit is also due the sponsors of the conference for conceiving the project and so splendidly implementing it.

What's the Score?

THE CURRENT SCENE in Washington as Congress wrestles with the President's many budget requests has the average citizen pretty confused. For example, the President requested a sizeable appropriation for Civil Defense. The House cut the request by 87%. Such a cut is tantamount to saying that the President's idea of the magnitude of the civil defense problem is fantastic. Yet Congress has failed to spell out its own philosophy on civil defense planning.

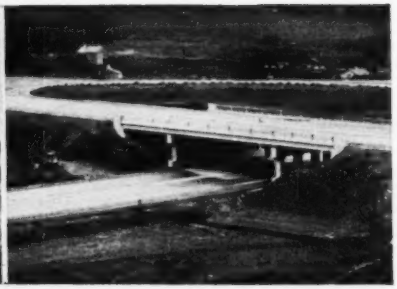
The Congressional hatchet also fell on the requested $14 million for the new National Science Foundation, lopping off 90%. Yet the foundation was set up by Congress to foster research and provide science study scholarships to bolster the nation's security. The foundation says it is ready to operate. Congress says there's no hurry. Maybe $14 million was too big a starting fund, but $1½ million is surely too little.

In these two instances the President seems to show more logic than Congress has marshalled, but he evens the score by asking for a $400 million flood aid fund, part of which would be used for "rehabilitation grants" to compensate persons and firms for part of their flood losses. Government relief to alleviate physical suffering—lack of immediate food and shelter—is one thing—familiar and acceptable. But a plan to pay flood losses out of the federal treasury is government aid gone wild. What about losses from drought, or tornadoes, or even potato bugs? The President says that the grants would soon be replaced by a flood insurance plan, but in either case—free grants or insurance—it is unsound and unnecessary business for the federal government. Here is a place where Congress' penchant for 90% cuts would carry some logic.

Then there is the foreign aid budget on which the Administration and Congress are at opposite ends of the pole. Obviously, there is confusion in Washington as elsewhere. More exactly, because of Washington confusion, the average citizen is confused. What is the score? What is important and why? A little more light on our objectives—and a more sincere effort toward agreement on them by the Administration and Congress—might well provide the answers and allay some of the confusion.

BETTER CONCRETE

made with Atlas Duraplastic*



COSTS NO MORE

THE TREND is toward greater use of Duraplastic cement. It is being *specified* by more architects and engineers, contractors, dealers, ready-mix operators and products manufacturers. Here are the reasons:

BETTER CONCRETE results because Duraplastic air-entraining portland cement concrete is more workable, more cohesive, more uniform. In structural work this increased plasticity aids proper placement, improves surface appearance. On paving jobs it means easy spreading and screeding; permits finishing to start closer to the paver and allows earlier protection for curing. More and more products plants use Duraplastic to improve their products.

MORE DURABLE CONCRETE—Duraplastic (1) requires less mixing water for a given slump; (2) minimizes bleeding and segregation; (3) fortifies concrete against freezing-thawing weather and (4) scaling action of de-icing salts.

YET DURAPLASTIC COSTS NO MORE—It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklets, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

* * *

OFFICES: *Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.*

*"Duraplastic" is the registered trademark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

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ENGINEERING NEWS-RECORD

AUGUST 30, 1951 VOL. 147 NO. 9

$84 million span authorized to bridge Delaware River

Other bridge proposals include $16 million Potomac River project and Mississippi River spans in Louisiana, Arkansas; St. Louis plans run into veto by mayor

An $84 million bridge will be built across the Delaware River between Philadelphia, Pa. and Camden, N. J.

Pennsylvania's Gov. John S. Fine last week signed into law a bill authorizing the construction. Gov. Alfred E. Driscoll of New Jersey already had signed.

The structure authorized by the two states will supplement the existing Philadelphia-Camden bridge (which last year carried 23 million vehicles) and is part of an overall plan for improving highway and transit connections between the heavily-industrialized cities of Camden, N. J. and Philadelphia.

First recommended in studies nearly two years ago (ENR Jan. 13, 1949, p. 14) the new structure will stretch between South Philadelphia and Gloucester, N. J., with an elaborate system of approaches on the Pennsylvania side of the stream.

As recommended in the 1949 engineering report, and in later studies, the bridge is to be built under a new Delaware River Port Authority, to be created out of the existing Delaware River Joint Commission.

The new bridge will be an additional Delaware River crossing to another also recently authorized by the two states (ENR June 7, p. 24)—to connect the extension of the Pennsylvania Turnpike and the New Jersey Turnpike in a line between King of Prussia (present eastern Penn Turnpike terminus) and Bordentown, N. J.

• **Three others planned**—Plans have been completed by the Delaware River Joint Toll Bridge Commission for construction of three more toll bridges over the upper portion of the Delaware between Pennsylvania and New Jersey, according to an announcement from Acting Gov. Alfred B. Littell of New Jersey.

The biggest will be an $8.3 million span just north of the Delaware Water Gap near Stroudsburg. Four miles south of the Gap near Portland, Pa., a $3.6 million bridge is planned. North of the Gap at Milford, Pa., a new $3.6 million project is planned to connect Routes No. 6 and 209.

Elsewhere across the country during recent weeks bridge building activities have been running high. Here is a summary of the highlights:

In Washington, Rep. Howard W. Smith introduced and started hearings on a bill to authorize construction of a $16 million bridge over the Potomac River at Alexandria. The bridge has been advocated as a by-pass around the District of Columbia for traffic from Virginia north.

District and federal engineers urged Rep. Smith and his committee to "go slow" until the engineers can complete a traffic survey expected to require another four to six months.

In addition to the $16 million for the bridge, several millions more would be needed for approach tie-ins with Route 1, the Shirley Highway, and the Mt. Vernon Parkway on the Virginia side of the Potomac. No agreement has been reached on the method of financing the operation.

• **First step**—In Arkansas, the state highway commission authorized formation of an improvement district as the first step for construction of a proposed $7 million bridge over the Mississippi River, connecting Arkansas with Mississippi at Helena, Ark.

In Louisiana, a survey was planned for a new Mississippi River bridge at New Orleans, to be built an estimated cost of $44 million. The survey will include deep borings, topographical data, traffic and revenue estimates. Consideration will also be given to the possibility of building a tunnel instead of a bridge.

• **Turned down**—In St. Louis, Missouri, Mayor Joseph M. Darst vetoed a bill approved by the Board of Aldermen that would have permitted St. Clair County, Illinois to construct a toll bridge across the Mississippi River between Cahokia, Illinois and a point in the southern part of St. Louis.

The Mayor favored a proposal by the village of Cahokia to construct a bridge across the river a few blocks from the proposed county bridge and to provide for construction of the western approach, an overpass and widening of a street.

• **Not large enough**—An addition to the present Peace Bridge, spanning the Niagara River at Buffalo, New York, or a second bridge running

(Continued on page 24)

9 die, 15 hurt in Colorado dam blast

Work had been under way on the $12-million Denver, Colo. water board project in South Bolder Creek Canyon a little less than four months.

The dam is to be 340 ft. high when completed in 1954 and will back up 42,000 acre-ft of water.

Shortly after noon on Aug. 24, blasting crew of the Macco-Puget Sound Co. (Macco Construction Co. of Pasadena, Calif., and the Puget Sound Construction Co. of Seattle, Wash.) was charging holes that had been drilled on both sides of the 365-ft canyon walls.

Rain was falling and there were heavy clouds overhead.

Electric wire leads were being readied to detonate some 1,000 lb. of dynamite that were in the job. They planned to explode the charges at 5 P.M. when the day crews quit.

Suddenly a bolt of lightning struck the wires and set off the charges prematurely. Witnesses said the bolt hit the north rim of the canyon and almost simultaneously set off a blast on the south rim.

Two blasts ripped the canyon and both sides caved in.

Four men working near the top of the canyon wall were killed almost instantly. Five others died under a mass of rock that crashed down on the canyon floor, and more than 15 others were injured, nine seriously.

Power shovels and bulldozers started digging amid the terror, carnage and destruction to locate bodies of the dead and dying. Twenty ambulances were rushed to the scene from Boulder, Denver, and Arvada. Because of the difficulty of the terrain, it was more than an hour before the first load of injured could be taken out by ambulance.

Contractors may refuse to bid on major Air Force projects in St. Louis area

Bad labor situation responsible for loss of $2 million on one job; costs average $430 per thousand for laying brick, company says

Faced with what contractors charge is a fantastically bad labor situation in the area, it appeared last week that Army engineers would have no bidders this week on a number of huge construction projects in the area of East St. Louis, Ill.

The jobs coming up for bids Sept. 7 include a $24.8-million emergency defense program at Scott Air Force Base near Belleville, Ill., and some additional work on the Chain-of-Rocks Canal near St. Louis. Bids on the airfield work were rejected in July because they were 50% over estimates.

Army engineers themselves—after apparently fruitless efforts at getting labor and contractors together—were saying nothing officially about the situation. But nearly everyone else was.

• **Dropping away**—Here were the facts:

One by one, major contractors doing work in the area have finished their work and pulled away, amid reports that they had been losing money because of exorbitant and unreasonable labor restrictions.

Latest of the big constructors to pull out is a six-firm combine known as River Construction Co., which is completing work on the $18-million Chain-of-Rocks Canal locks near Granite City, Ill.

Components of this combine are Spencer, White & Prentis, Turner Construction Co. and Raymond Concrete Pile Co., all of New York City; and Winston Brothers Co. and Al Johnson Inc., of Minneapolis, and Morrisson-Knudsen Co., Inc., Boise, Idaho.

It was learned that five of the six have already pulled out of the contract, leaving Morrisson-Knudsen to finish up the work (now reported to be 95% completed).

It was reported—without confirmation from members of the combine—that the organization would take a loss of almost $2 million on the contract, due largely to labor troubles and labor non-productivity.

• **Slowdown**—A spokesman for the combine confirmed the reports of what he called "fantastic" labor practices in the area. As an example of slowdown, he reported that the companies figured it was costing them about $430 per thousand brick laid for labor alone. "When we tried to move the men a little faster," he added, "we found that the labor unions had provisions in their by-laws prohibiting foremen from 'hurrying' the men."

During the job, truckmen pulled a slowdown of their own—running their vehicles in low gear for entire hauls. Additionally, the spokesman said, constant inter-union jurisdictional bickering caused walkout after walkout, slowing the job and delaying work.

"Any bidder in that area has to figure at least 50% of his cost for labor alone," the spokesman said.

• **Plenty of effort**—It apparently wasn't for lack of conciliatory effort that the situation has developed. Observers think rather that a tight labor market and irresponsible union leadership is responsible.

Contractors reportedly have tried the expedient of conferences (some of them sponsored by Army engineers) with local labor organizations—and have employed subcontractors supposedly in good standing with labor.

Nothing, however, seemed to work. Labor troubles of one sort or another have beset the job since it started in 1947.

Test road site picked

A site near Malad, Idaho, on U. S. 191, has been selected by the Western Association of State Highway Officials for a test of the effect of various loadings on bituminous pavement. The association voted at its annual meeting to proceed at once with this test program (ENR July 5, p. 23).

The program is to be patterned after the Maryland test road (ENR Jan. 18, p. 28) except that this test will be on sections of a new bituminous pavement, whereas the Maryland test was on an existing concrete pavement.

The $275,000 test program will be administered by the Highway Research Board.

Omaha to build new power plant on Missouri River

The board of directors of the Omaha Public Power District has approved construction of a 60,000 kw generating plant at an estimated cost of $13,984,000.

OPPD will act as general contractor on plant construction, which will begin next spring on a 48-acre site bought from the Union Pacific Railroad's big North Omaha industrial tract along the Missouri River.

Estimates prepared by Sargent and Lundy, Chicago, Ill., surveying engineering firm, call for spending $3,640,000 on the turbo-generator and auxiliaries, electrical equipment, etc.

• **To be Elevated**—The remainder is earmarked for the plant, coal-fired boiler units, condenser water supply, substation and engineering costs.

Bed rock depth at the site is 134 feet, so the plant will be built on piling and a land fill elevated to the highest known Missouri River flood stage at that point.

The plant is the first unit of a 20-year, $55,000,000 expansion program designed to add 300,000 kw to OPPD's current two-plant output of 215,000 kw.

Oregon dam proposed

Portland General Electric Co. has petitioned the FPC for a preliminary permit to investigate the feasibility of constructing a second power dam on the Deschutes River in central Oregon.

Site of the proposed dam is 8 mi. upstream from the site of the controversial proposed Pelton Dam, which has been bitterly opposed by commercial and sports fishing interests. Licensing of the Pelton project has been recommended by staff counsel for FPC, but the Oregon hydroelectric and state fish and game commissions have rejected an application for a state permit.

The new project, known as Round Butte Dam, would cost an estimated $37 million, bringing cost of the combined projects to some $60 million. Combined generation of the two plants would be 345,000 kw. The two dams together would be the largest non-federal project in the Northwest. One larger project, the City of Tacoma's proposed dam on the Cowlitz River in southwestern Washington, has been turned down by the FPC.

New bridges planned . . .

(*Continued from page 23*)

parallel to the existing one was seen as a definite possibility within the next five or six years by John W. Van Allen, secretary-treasurer of the Peace Bridge Authority.

• **In Maryland**—J. E. Greiner Company, consulting engineers, revised their estimate of the cost of the Chesapeake Bay Bridge which is scheduled for completion in June, 1952.

Total cost of the bridge and approaches is now expected to be about $42.6 million, compared to $41 million estimated in 1949.

Congress advances construction bills

Interior Department appropriations, defense housing bill, await Truman's signature; others wait in Congress

Congress again has sent to the White House a bill continuing for another month government agencies temporary spending powers. It authorizes them to finance their operations through Sept. 30 by drawing in advance against anticipated funds to be allotted to them in pending bills.

These measures and others have been snarled in a legislative log jam for months. But headway is being made on some important ones for construction:

• **Military construction bill**—Authorization to spend a record $5.7 billion for defense construction has been passed by the House and awaits Senate action.

• **Army civil functions bill**—Passed by the House and Senate, this bill has gone to a joint conference committee to adjust differences. The House Appropriations Committee has attacked the Army Corps of Engineers for "inadequate engineering, planning, and estimating." The matter has been referred to Public Works Committee.

• **Interior Department Appropriation**—Truman is expected to sign into law this week the Interior Department appriation of $511 million, which includes $202 million for the Bureau of Reclamation.

• **Defense housing bill**—Awaiting Truman's signature is a $1.6 billion bill to encourage building around military bases and defense production areas.

Inquiry on Three Rivers bridge collapse begins

Public hearings began Monday in Trois Rivieres on the collapse of part of the Duplessis Bridge between Trois-Rivieres and Cap de la Madeleine.

They are being conducted by a commission consisting of Rene Lippe, a lawyer, and J. Lucien Dansereau, a civil engineer to determine the facts in connection with the failure of four spans of the eight-span bridge on Jan. 30-31. (ENR Aug. 16, p. 27).

Governor urges second tunnel to East Boston

Gov. Dever of Massachusetts sent a special message to the state legislature on Aug. 22 recommending the construction of a second vehicular harbor tunnel from the city proper to East Boston at an estimated cost of $35 million.

GIANT GIRDER SPANS RAILROAD TRACKS—Most suspenseful moment in the erection of any heavy steel girder is when derricks have it at required height, then boom up and swing it into position. In this case it's a 153-ft, 107-ton girder which will carry Bronx River Parkway by a new approach into New York City over four electrified tracks of the New York Central. With passing of a Southbound express at 1:49 AM Aug. 22, Harris Structural Steel Co. workmen turned to and had it securely in place in 71 minutes, with 31 minutes to spare before passage of the next train. Its the largest piece of steel to span the tracks of the New York Central since 1937 when one almost twice as big—190 ft long and weighing 150 tons—was installed to carry Henry Hudson Parkway over the system's tracks at Riverside Park (ENR June 10, 1937, p. 865. (N. Y. Herald Tribune photo.)

Controls strangle building in Europe

Rent control, cartels and hidebound traditions are strangling the economies of Britain, France and Italy, reports a group of U. S. builders who have been studying postwar house construction in Europe. One consequence is that few new homes are being built in those countries, and what is being constructed is of relatively low standard.

In contrast, housing in The Netherlands and Switzerland where there is little government control, is ample and of good quality.

Sent abroad by the National Association of Home Builders to study European developments in housing, the group consists of Floyd R. Kimbrough, president, Kimbrough Homes, Inc., Jackson, Miss.; B. A. Martin, Atlanta, Ga.; W. W. Caruth, Jr., president, Caruth Building Service, Caruth Corp., and Caruth Terrace Corp., Dallas, Texas; Ralph Wells, president, Ralph Wells & Sons, Kansas City, Mo.; and Joe Driskell, president Driskell & Co., Fort Worth, Texas.

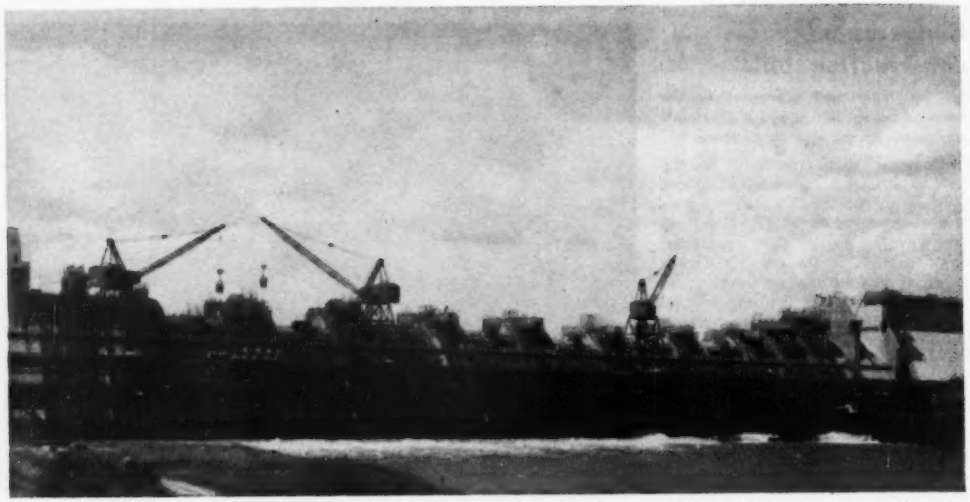
• **None in Britain**—They found that there is practically no private home building in Britain at present. Under the Socialist government, a quota of 200,000 units has been set for all of Britain for 1951. Last year, 165,000 dwelling units were built.

Elsewhere abroad, housing is being constructed mostly by cooperatives. Rent control in Britain, France and Italy fixes rents for pre-war houses so low that many landlords abandon their properties because they cannot pay taxes and up keep from rents.

• **Wages Low**—Construction labor wages are very low compared to those in the U. S. Nevertheless, labor costs may be high because productivity is low.

Cartels of various types in Europe act to suppress the living standard of workers the builders say. Trading agreements between members of a cartel fix wages, prices and markets. Wages are kept so low that workers cannot hope to have enough money to buy their own home or to go into business to increase their income.

Custom, too, prevents workers from improving themselves through private enterprise. There no longer is a middle class in Britain, France or Italy. The U. S. foreign-aid program, the committee concludes, can do little to improve living standards abroad unless the cartels are abolished.



NEARS COMPLETION—The $78 million Clark Hill Reservoir flood control and power project for Georgia and South Carolina is among the major construction jobs under the U. S. Army Corps of Engineers to receive authorization under the Civil Functions Bill for additional expenditures. To date more than $51 million has been appropriated. An authorization for $18 million more is estimated to complete the project. Shown here is the spillway closure looking north.

House unit to probe Army Engineers

A House Public Works Subcommittee is going to study procedures and policies for authorization of river and harbor, and flood control projects.

It was appointed after the House Appropriations Committee last week charged the Army Corps of Engineers with inadequate engineering planning and estimating.

The Committee then inserted into the supplemental appropriations bill a new section prescribing a detailed "planning report" and cost estimate for each current project to be submitted to Congress each year for consideration by the appropriation committees.

When the bill came up for passage on the floor of the House, the House adopted, 113 to 57, an amendment by Henry D. Larcade, Jr., Democrat, La. which eliminated this provision entirely.

• **Charges fly**—This vote came after an amendment to apply the provision also to the Bureau of Reclamation was ruled out of order.

Previously, several members had charged that the Appropriations Committee was endeavoring to "destroy the Corps of Engineers" or hand its projects over the Bureau of Reclamation.

Defeat of the proposal can be attributed, at least in part, to the feeling among congressmen that the Appropriations Committee was overstepping its authority—that such proposals should originate in the legislative committees, in this case Committee on Public Works.

Concrete, asphalt compete for Ohio Turnpike paving

Decision of the Ohio Turnpike Commission is expected Sept. 4 on whether concrete or asphalt will be used to pave the proposed $300 million Northern Turnpike. Last week the commission heard testimony from champions of each product.

Portland cement concrete pavement is recommended by J. W. Greiner Co. of Baltimore, consulting engineers for the turnpike. They say it will be some $5 million cheaper to build and maintain than asphalt.

State Highway Director T. J. Kauer has endorsed the use of concrete. The commission did not accept these recommendations, however, without hearing representatives of both industries.

• **Asphalt touted**—Fred E. Swineford, Engineering Director for Macadam, Inc., told the commission that on the basis of experience in New Jersey, an asphalt pavement would cost $11 million less than concrete in Ohio.

G. Donald Kennedy, assistant to the President of the Portland Cement Association, told the commission recent improvements in laying concrete would provide a road that would outlast the life of the turnpike bonds.

He said use of air entraining concrete and subbase treatments would eliminate scaling and pumping of the roadway. He also claimed lower maintenance costs for concrete.

Kennedy told the commission 83 per cent of existing expressways in cities over half a million population are paved with concrete and 63 per cent in rural areas.

• **Figures disputed**—Bernard Gray, President of the Asphalt Institute, took issue with Kennedy's figures, claiming there is less mileage today of concrete construction than in 1935.

He supported the request by other spokesmen for the asphalt industry that the commission take alternate bids for both concrete and asphalt paving to see which could be cheaper.

Nold to head Engineers' Rivers and Harbors Board

Major General George J. Nold, deputy chief of the Corps of Army Engineers, is new chairman of the board for rivers and harbors succeeding Maj. Gen. John S. Bragdon, who retired several months ago.

Nold's new duties will be in addition to the ones he now has as deputy chief. The board reviews all reports to Congress on river, harbor, flood control and multiple-purpose projects of the Corps.

Col. William E. Potter leaves his position as assistant chief of engineers for special projects to become a student at the National War College.

Senate group hears three-way battle over Niagara power development plans

Controversy flares over proposals for U. S. Army Engineers, New York State Power Authority, private utilities to build project

Everyone agrees in current hearings before the Senate Public Works Committee, that delay in developing the Niagara River's electric power potential will cost this nation heavily. They agree that the vast power potential should be harnessed.

But there the agreement ends.

Who is going to build the $300 million power project, is causing ardent controversy.

• Democratic Senator Herbert H. Lehman of New York, who estimates the annual loss from delay at $100 million, wants the Army Engineers to do the job.

• Republican Senator Irving Ives of New York wants to New York State Power Authority to do it.

• Five major New York utilities have offered to organize and finance a company to develop the project privately.

Each has presented a strong case to the Senate Committee.

Senator Lehman says only the Army engineers have "the vast construction experience" to undertake the project. Hitting Senator Ives' proposal, he said "The New York Power Authority has no construction experience whatever."

He was supported by Assistant Secretary of the Interior William E. Warne who told the committee that Senator Ives' bill omits some of the "safeguards which have been carefully provided by the Congress in authorizing power developments, large and small, since the time of Theodore Roosevelt."

• **Cites examples**—"For example, the bill makes no adequate or clear cut provision for supply of power to municipalities, public bodies, rural electric cooperatives, and other preference customers," Warne said.

He was told by the committee that his testimony "spotlighted" the controversy over whether it is reasonable to assume that an agreement can be reached for transfer of the project by the government to New York State after it is completed.

Both bills provide that the completed project be turned over by the federal government to the state to own and operate upon payment of construction cost.

• **Ives answers**—Senator Ives said his bill would "permit one great state to proceed with a large project which is fully within its capacity and hence its duty to develop."

"It can decrease the burden on the federal government just that much, and permit the State of New York to provide its people and the people of neighboring states with the advantages of cheap power, so long promised and so long denied," he said.

Senator Ives charged that Senator Lehman's bill would have the effect of putting the Department of Interior into the electric business in New York State.

• **Private proposal**—His sentiments were shared by five major power companies, but they proposed a different way to develop Niagara power. Earle J. Machold, president of the Niagara Mohawk Power Corporation told the committee:

"It is our position that there is no justification whatever for government, either federal or state, to construct or operate the power development of the Niagara River.

"Private enterprise is not only ready, willing and able but best qualified to construct and operate the project. Congress should avoid recourse to public funds and adding to the ever-increasing financial burdens of the nation."

• **Outlines plan**—Machold said he spoke for his own company, the New York State Electric and Gas Corporation, Consolidated Edison Company, Inc., Rochester Gas and Electric Co. and Central Hudson Gas and Electric Corp.

He told the committee his group has completed all preparatory steps and studies for development of the project and lacks only the legal authority to undertake construction immediately.

"The five utility systems are peculiarly fitted to undertake the project and best qualified to start construction forthwith and complete it most quickly, and at less cost. They are financially able to secure capital needed to finance the project."

• **Bill argued**—Republican Representative William E. Miller of New York argued for a bill by Senator Homer E. Capehart, Republican of Indiana, which is also pending before the committee.

He told the committee that if the project is publicly developed it would cost about $300 million of the taxpayers money and would also result in an annual tax loss of about $23 million. These taxes would be paid by private enterprise if the plants were built and operated by private companies.

CONCRETE RELAY TOWER—This concrete relay tower between Chicago and Des Moines is part of a $40,000,000 microwave beam radio system spanning the continent that recently went into operation for long distance telephone service. One hundred and seven towers, some of steel, some of concrete, make up the system. It will telecast coast-to-coast for TV starting Sept. 4.

Plans to start on key Rhode Island projects

The U. S. Public Roads Administration has approved preparation of engineering plans and surveys for four key Rhode Island projects to cost about $20,000,000:

1. A new bridge across the Providence River in Providence.

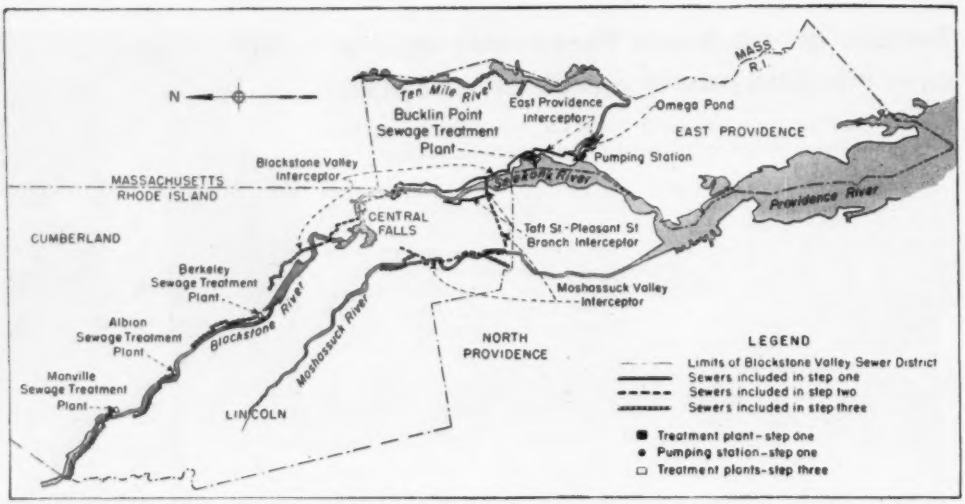
2. A new bridge across the Blackstone River in Pawtucket, ending a severe bottleneck on the main New York-Boston highway, described as the worst between Maine and Washington, D. C.

3. A half-mile viaduct across the New Haven railroad yards in Providence.

4. Extension of the four-lane divided highway Louisquisset Pike, the Woonsocket highway, into Providence.

The Providence River bridge and the viaduct are two of the major phases of the North-South freeway which is proposed as an expressway to serve the city and through New England traffic. Until completion of the freeway, however, the projects are expected to relieve city traffic at two points where pressure today is greatest.

Under the federal-state program each government will provide $485,000 for engineering.



PROPOSED BLACKSTONE VALLEY SEWERAGE consists of interceptors and treatment plants to be built in three steps. A portion of interceptors in Step One is already in service, making money. Secondary treatment under step three is still to be worked out.

Unfinished sewers earn an income as district builds treatment plant

Sound planning of Rhode Island's Blackstone Valley Sewer District Project has already resulted in this enviable state of affairs: The project already has an income—although (dollar-wise) construction is only 20% completed.

The secret of this obvious planning success is in the business-like progressive development worked out by the Blackstone Valley Sewer District Commission and its consultants, Metcalf & Eddy, of Boston.

• **Step-by-step**—Present income—averaging about $7,500 per month—comes from a service charge of $64.50 per mg levied against municipalities and industries already tied into a 3¼-mi completed length of Blackstone Valley and East Providence interceptor. This section was built as the earliest stage of the first step in what is planned as a $16,000,000 three-step development.

So far, only $3,431,000 of state bond money has been spent and Step One—including 5 miles of intercepter, a 15 mgd pumping station and primary treatment facilities for 23 mgd at Bucklin Point on the Seekonk River—won't be finished until May, 1952. But eight industrial and five municipal connections already have been made to the finished portion of sewer. And on completion of Step One, 72% of all the wastes of the entire 75-sq. mi. valley will be intercepted and given primary treatment. Right now, wastes collected are chlorinated at the construction site of the sewage treatment works before discharge into Seekonk River.

Step Two is planned to double primary treatment capacity, handle an estimated 1975 flow of 47 mgd and to include seven more miles of interceptor, plus an outfall at the treatment plant.

Step Three will add secondary treatment as required at Bucklin Point, extend interceptors another 7½ miles and provide for construction of three minor treatment plants to handle flow in as many isolated lengths of interceptor within communities upstream on the Blackstone River.

• **Several advantages**—This step-by-step fulfillment of a sore pollution abatement need does more than afford opportunity for the commission to reap early income on uncompleted facilities. It permits logical extension of these facilities as funds become available.

And, very importantly, it gives the commission and its consultants time (before beginning work on Step Three) to learn more about the nature of wastes collected and to determine best possible secondary treatment applicable. (About 75% of flow to be treated is expected to be industrial wastes, mostly from textile plants.)

Industrial wastes now flowing to Bucklin Point are metered as they enter the Blackstone and East Providence interceptors. It is up to each individual industry to install a flow-measuring device acceptable to the commission in its lateral that ties into the interceptor. So far, all have installed (at their own expense) metering facilities of sufficient size to determine how much they must pay the commission for waste disposal. Municipal contributions are ascertained by deducting separately metered industrial flows from total flows recorded on commission-owned meters at respective downstream municipal boundaries.

• **Temporary chlorination setup**—Intercepted wastes, flowing now to Bucklin Point from two directions, are diverted there to temporary chlorination installations set up on north and south sides of the site (see photos). The northern installation is the larger, with a present average flow of 4 mgd; 1 mgd is the flow at the other.

At each, raw sewage enters a reinforced concrete dosing tank under a temporary structure that houses automatically controlled, volumetric chlorine feed equipment. Average chlorine demand is 9 ppm, which meant 2,450 lb per day in 1950 and will come to 3,550 lb per day (average) by 1975.

TEMPORARY CHLORINATION – Only treatment given wastes collected now is chlorination at this temporary installation (and another like it) at Bucklin Point. Chlorine is fed in building; in foreground is detention basin.

SEWAGE PUMP in temporary house at overflow end of detention basin returns disinfected sewage to chlorinator for use as dilutant. Overflow from basin is discharged into the Seekonk River (see map).

Maximum daily demand (18 ppm) is now 4,900 lb and will be 7,100 lb in 1975.

Each chlorine feeder now in use is a 6,000-lb-per-day unit. This equipment, temporarily installed now, will be used permanently later in the completed treatment works.

The two present installations cost the commission $139,000. Of this, 80% was spent on facilities and equipment tagged for ultimate use in the finished plant. The remainder may be considered investment in a stop-gap attempt at purification–for which the commission already is being paid.

About 1,500 mg of wastes, formerly discharged raw, have been chlorinated since June 22, 1950. Beneficial effect on waters of the Seekonk River has been evidenced by noticeable abatement of nuisance conditions. Also, certain species of fish, long absent from this estuary, were reportedly removed from industrial intake screens this spring.

• **Bucklin Point plant**–While present flow is diverted through the temporary chlorination installations, construction of the project's major treatment works progresses on a 40-acre site. The present $2,847,000 contract calls for construction of Parshall flumes on either side of the plant, mechanically cleaned screens, screenings grinders, grit channels, primary sedimentation tanks, two 0.10 mg digesters and an 8 x 10-ft reinforced concrete outfall; it is about 40% finished.

When completed, this contract will have provided means for giving primary treatment to 23 mgd, half the estimated 1975 design capacity.

• **System's sole pumping station**–Meanwhile, the $230,000 Omega Pond Pumping Station has been completed. This is on the East Providence interceptor, about one mile south of Bucklin Point.

A section of East Providence interceptor runs roughly parallel to and south of Ten Mile River, carrying flow by gravity to the pumping station, located where the stream widens into Omega Pond just before entering the Seekonk River. From the station, pumps will push wastes under Omega Pond in a 20-in. dia cast iron pipe, and on for another 1,250 ft to the top of a divide separating the tributary portion of East Providence from Bucklin Point, where they enter a 48-in. reinforced concrete pipe which conducts them to the treatment plant by gravity.

Omega Pond Pumping Station is to be operated remotely from the treatment plant. It is fitted with screens, screenings grinders and an emergency by-pass.

• **River crossing**–The subaqueous length of East Providence interceptor under Omega Pond was floated as it was assembled, then lowered into place. Sections were bolted together and shoved out from shore lashed to buoyant oil drums. When sufficient sections had been added, the pipe spanned the 260 ft from shore to shore in a 290 ft long curve. When all was ready, the pipe was cut loose from the floats, to sink into the river bed which had been prepared for it.

Other stream crossings – inverted siphons–in the system will have varying sizes of pipe to minimize clogging under varying rates of flow. The project's major river crossing, under Seekonk River about a mile north of Bucklin Point, will be accomplished soon. Influent and effluent chambers are constructed and three syphon lines are to be laid–a 16-in. dia cast iron pipe and 30 and 48-in. diameter reinforced concrete pipes.

• **Deep inverts**–At several places, interceptor inverts must go too far below grade for open cut work–although cuts as deep as 55 ft have been made on sections already completed.

Tunneling is being done both in rock and in soft ground. A rock tunnel now under construction is 1,400 ft of a 6-ft dia bore being worked at two headings from a single shaft on the Taft St.-Pleasant St. interceptor in Pawtucket. Into this tunnel goes a 42-in. dia reinforced concrete sewer pipe packed into position with sand on all sides. Rock was found good and sound, in need of no support through most of the tunnel length.

Soft-ground tunneling undertaken on the job so far is being done at a contractor's option. He is doing it at open-cut prices ($95.22 per ft, including sewer barrel) through a 400-ft length where the invert is to be 25 ft below the street. This particular section is just upstream from the afore-

AT BUCKLIN POINT sludge digestors (foreground) and sedimentation tanks (background) are now under construction to provide primary treatment for 23 mgd—half the plant's design capacity. Rest will come later. **(ENR Staff Photo)**

DEEP OPEN CUTS are typified by this one; invert level is 55 ft below grade. This 90-in. cast-in-place, semi-eliptical section was used on the southern-most 6,000 ft of Blackstone Valley interceptor; 2,500 ft of similar section in 60-in. dia. also was used. Elsewhere pipe is mostly precast circular with diameters 15 to 60 in.

mentioned Seekonk River crossing. Since the crossing, not yet begun, is the controlling factor on completion of the particular contract, there is no hurry on getting the 42-in. pipe in place above it.

• **Slow but sure**—Earth being tunneled through is running ground—dry, free-flowing sand. The miner's portal is in the bottom of a big hole excavated to just below invert grade. The miner himself is digging ahead with hand tools at the rate of about 4 ft per day. Using the aged and proven forepoling method, he tediously drives 3 x 6 in. spiles forward, bracing them with bents of 8 x 8-in. timbers each 4 ft of the way. Excelsior stuffed in cracks between the spiles keeps out sand.

Gil Wyner Co., Inc. of Malden, Mass., is the contractor on Taft St.-Pleasant St. Branch Interceptor, where this rock and soft ground tunneling has been under way. This contractor has also done sections of the Blackstone Valley and East Providence interceptors. Clyde Kelley is his job superintendent.

Unfinished portions of the Blackstone Valley interceptor are being built by Marinucci Bros. & Co., of Boston, under the supervision of Guido Verrochi. Part of East Providence interceptor was built by Callan Construction Co., Bristol, R. I.; Jake Ableman was job superintendent. R. Zoppo Co., of Norwood, Mass., built Omega Pumping Station; the temporary chlorination structures were built by Westcott Construction Co., North Attleboro, Mass.

OMEGA POND CROSSING—Force main from pump station is 20-in. dia cast-iron pipe. Flexible joint permitted assembling whole length on surface to be sunk into line.

SHEETED TRENCH in soft ground is kept open by timber lagging behind H-pile soldier beams. Soldiers are braced with steel-and-timber frames hung from their tops.

F. H. McGraw & Company, of Hartford, Conn., are constructors of treatment plant facilities now under way at Bucklin Point. Fred Flad is job superintendent; Frank Floryan is contract manager.

• **The Blackstone Valley Sewer District Commission**—Charles G. Hammann is chief engineer of the Blackstone Valley Sewer District Commission.

This agency of the State of Rhode Island was set up in 1947 when it had become obvious that communities acting individually would not be able to abate pollution resulting from stream-abuse that had grown gradually through decades of population and industrial growth. Governor John O. Pastore asked early in 1947 that a sewer district be established. The legislature lost no time; a bill was introduced on March 3, 1947; it was passed March 19, and the Governor signed it into law the same day. Legislation provides that the project shall be entirely self-liquidating; all costs must be paid by the communities and industries which have connections with the facilities provided by the project.

Next, a referendum approved—by a 15 to 1 majority—issue of $5,000,000 worth of bonds to put the commission in business. Consultants Metcalf & Eddy were engaged in January, 1948, and by July, 1948, had submitted the report on which present step-development for handling the Valley's wastes is based.

In 1950 another $2,500,000 bond issue was approved for financing of present work. W. J. Halloran is chairman of the five-man commission, and A. A. Bonvicin executive-secretary.

Civil defense promoted at all levels

Civil defense activities seemingly are becoming better integrated as the three main levels of defense activities —federal, state and municipal—move into practical and mechanical phases of the mammoth job of safeguarding the nation against possible attack.

• **From Washington**—The Federal Civil Defense Administration has distributed an illustrated bulletin to be used as an official guide for organization of municipal communication control centers. Copies have been mailed to state defense directors and to directors in cities with populations of over 40,000.

The bulletin describes only an organizational pattern for the communications section of municipal control centers. Operational procedures will be covered in a technical manual to to be released soon.

Civil defense personnel are reminded that a control center must serve both before and after an attack. It is recommended that buildings housing control centers be away from prime targets for the enemy—such as factories or important transportation facilities. At least one main and one alternate control center are suggested for each city.

• **At the state level**—Massachusetts has made tests for possible radioactive contamination of drinking water a part of the safeguards around its water systems within the state. Detection equipment is in service in the state's department of health experiment station at Lawrence.

Civil Defense Director John F. Stokes says that water tests will help guard against sabotage and become a safeguard in case of atomic attack. In the course of a year, more than 20,000 samples of domestic water supplies throughout the state pass through the Lawrence station for routine tests. The new radiological test will be integrated into the program.

The installation consists of four units. An infrared radiator evaporates the samples of water. The dried residues are then placed on a turntable which automatically passes them through a counting" unit—a Geiger counter connected to an indicator showing the degree of radioactivity. Results are recorded on a tape.

• **Municipal problem**—Civil defense and water department officials for New York City recently spent three days on a 400-mi tour of the sprawling watershed, reservoir and aqueduct system that supplies more than one billion gal of water daily to the metropolitan area.

As a result, plans have been well developed for wartime protection of these far-flung facilities.

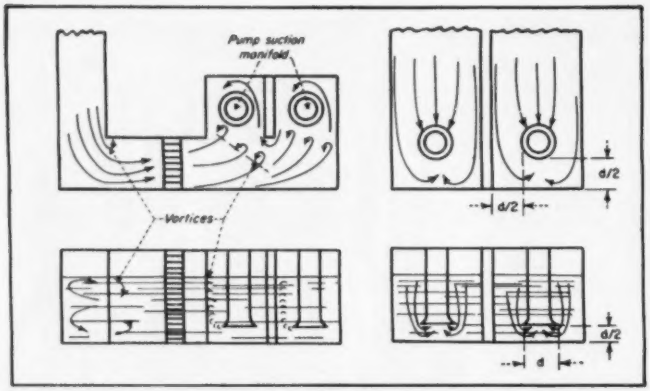


FIG. 1–BENDS IN APPROACH CHANNELS to the sumps of large sewage pumps (left) caused serious disturbances of flow and induced vortices that reduced the efficiency of the pumps. A better layout is shown at the right.

Properly proportioned sumps essential to pump efficiency

R. H. Bird

Designer, Peerless Pump Division
Food Machinery & Chemical Corp.,
Los Angeles, Calif.

PROPER SUMP DESIGN is one of the most important considerations in any successful pumping station, particularly where axial-flow or mixed-flow pumps are used. All too frequently a sump is regarded as merely a round or square hole in the ground where the liquid is allowed to enter in a random manner. Often the burden of properly handling the liquid is left entirely to the pump. Since the inherent characteristics of pumps are such that the liquid must flow to it in a proper manner and under controlled and rather exacting conditions, there have been numerous cases where "failure" has actually been the direct or indirect result of improper sump design.

Sump design is neither simple nor exact, and no precise formulas or geometry can be set forth to insure that in every case encountered in the field, a uniform and proper flow of water into the pump will be insured.

When the size and expense of the plant warrant, it is usually advisable to construct a working model.

• **How not to do it**–Many sumps having serious defects in design have been observed in the field so that it is now known definitely how NOT to design a sump. Correlating this negative aspect with the direct results of model work provides some basic and simple requirements.

An outline of an actual sump built to handle 150,000 gpm of treated sewage is shown in Fig. 1. The shape of the approach channel and the pump stalls caused extreme disturbances of the flow, and groups of large vortices were induced in uniform patterns, even to the extent of return flow from one stall to the adjacent stall.

Attempts to suppress the vortices at the surface were unsuccessful, since the whirls began in the region of the pump bellmouths.

In general, any stream that is required to make bends in approaching a pump intake, whether sharp-cornered or with a fairly large radius, tends to form vortices and gives rise to uneven flow velocities about the sump.

The preferred layout, shown at the right in Fig. 1, does not introduce whirls and results in more uniform flow toward the suction manifolds of the pumps.

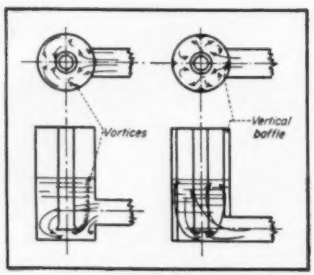


FIG. 2–A SIDE INLET above the bottom of the circular sump of an irrigation pump resulted in turbulence and vortices.

Laboratory studies have indicated that the best performance will be obtained when each pump is installed at the end of a rectangular approach channel, with the bellmouth located centrally and not less than one half the diameter of the bellmouth from the sides, end and bottom of the channel. The length of each channel should be not less than four channel widths.

Where this length cannot be obtained except at high cost, straightening vanes should be provided.

A circular sump, such as is shown the the left in Fig. 2, with the side inlet at an elevation above the sump bottom is generally quite troublesome and will cause the pump intake to sway or vibrate sideways as well as to form regions of whirl.

Such a layout actually was made for a 54-in. pump on a large irrigation project. Low-level horizontal and vertical vortex systems were induced that seriously affected the pump capacity. With various submergences, the surfaces disturbances were great enough to admit large quantities of air through the vortices.

The flow conditions at this installation could be improved by lowering the side inlet to the bottom, as shown at the right in Fig. 3, and by installing four vertical side baffles. However, the improvement will be only a matter of degree as objectionable cross flow and turbulence will still remain. Velocities of the magnitude of 3 to 5 ft per second are not objectionable as long as the flow is directional.

• **Multiple pump installations**–The use of several pumps in the same sump in various combinations is sometimes necessary. This gives rise to a more complicated problem than a single pump, and as the flow system varies, it should be regulated in accordance with the results of model studies. Such studies will definitely aid in fixing acceptable limits of the capacity range for the different combination of the pumps in service.

Quite frequently, an installation of an axial-flow or mixed-flow pump will indicate the need for a strainer attached to the suction manifold. This is generally not satisfactory because a strainer is easily obstructed by scale, rust or debris. Since a strainer so placed is not readily accessible, a gradual restriction of inlet area can take place, giving rise to serious operational difficulties. The losses will frequently exceed the available submergence head. Therefore, the proper way for separating trash and debris is the movable or traveling screen, removed some distance from the actual suction manifold.

FABREEKA

Mountings for 900-ton TWIN VIADUCTS on the C&O Ry.

PROTECT BOTH CONCRETE and STRUCTURE

The Viaduct over West Fork is 176′ high and 850′ long. Viaduct over Arnold Fork is about the same height and 701′ long. Towers, consisting of four supports 50′ apart, are spaced at 100′ intervals beneath the span.

Fabreeka Pads, 41″ x 41″ x ½″, are installed beneath the 4 inch steel pedestal bases to separate and equalize the bearing surfaces of concrete and steel, and to seal out weather. The abutments are equipped in the same way, but with smaller FABREEKA Pads measuring 19″ x 39″ x ½″.

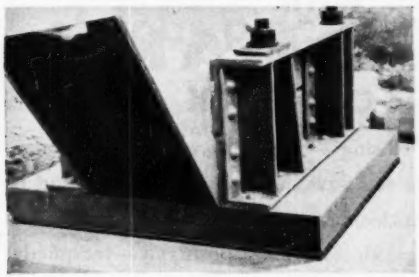
FABREEKA Pads Insure Even Distribution of Load

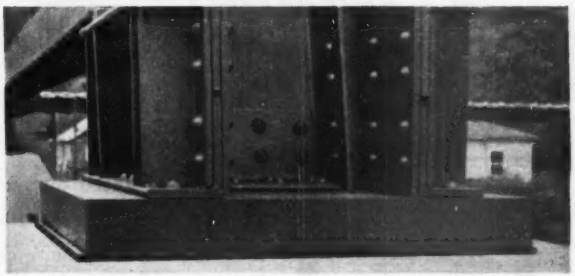
FABREEKA Pads beneath the steel columns adjust themselves to the bearing surfaces of the concrete foundations, insure even distribution of the load, and eliminate grouting.

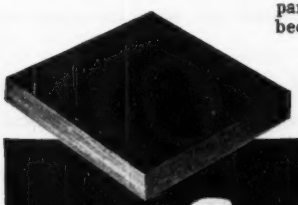
FABREEKA Bridge Pads absorb impact shock and vibration and prevent flaking and cracking of the concrete foundations.

FABREEKA Mountings are used on this 850′ viaduct on the Chesapeake & Ohio Railway over the West Fork in Kite, Ky.

FABREEKA Mountings are also used on this 701′ Arnold Fork viaduct on the Chesapeake & Ohio Railway, likewise in Kite, Ky.







Fabreeka Bridge Pads are an essential part of modern bridge construction because of their proved accomplishments and long life.

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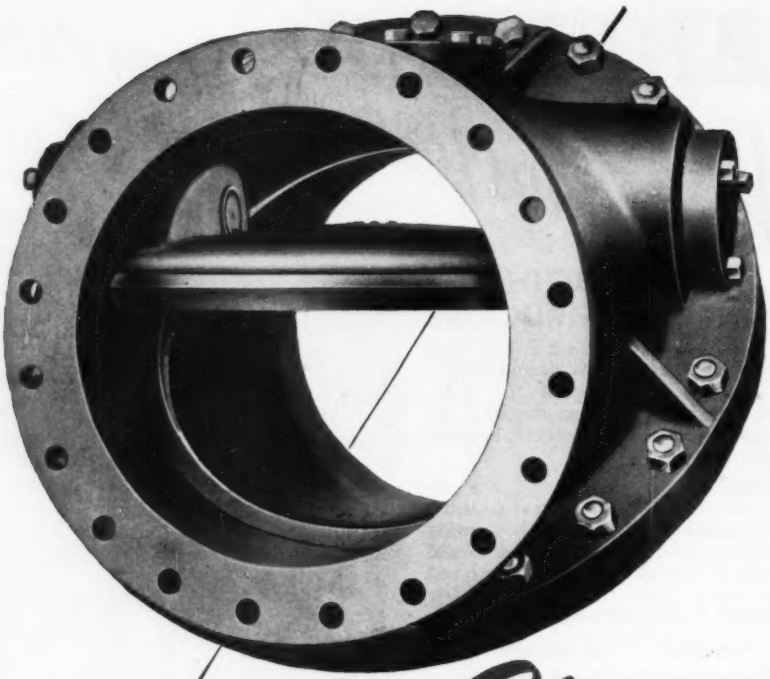

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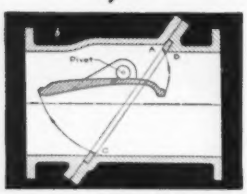
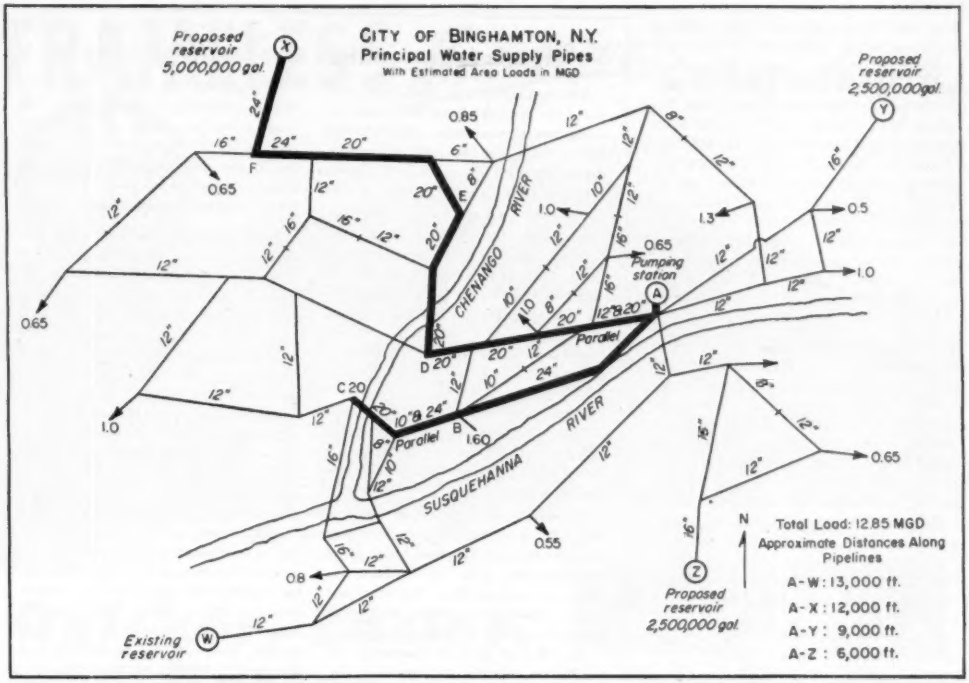


Cross-section of the Chapman Tilting Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

The Chapman Valve Manufacturing Company
INDIAN ORCHARD, MASSACHUSETTS



COMPLEX PIPELINE NETWORKS are easy prey to analysis by non-linear electric analogy. Binghamton chose method to give quick answers to questions on capacity, reservoir levels and pumping requirements for proposed additions to its overtaxed water distribution system. Heavy lines indicate new mains found needed.

There's an easy way out of your pipe-network woes

Malcolm S. McIlroy
Professor of Electrical Engineering, Cornell University, Ithaca, N. Y.

ANY TECHNICALLY MINDED PERSON can operate the pipeline-network analyzer that has been used to tell Binghamton, N. Y., in three days how to reinforce its water distribution system for future loads. Without help of such a device, two months or more might have been spent on complex hydraulics computations.

Binghamton (pop. 80,000) had a two-part distribution system, portions of which were overloaded. Reinforcement was necessary. The low system served the area roughly north of the Susquehanna River (see map). Its pressure was governed by the elevation of a reservoir at point X. An intermediate system served the area roughly south of the river, with a reservoir at point W.

It was desired to operate the entire pipeline network as a single system to take advantage of the increased capacity provided by loop feeds. This change necessitated the installation of two new pipeline crossings of the Chenango and Susquehanna rivers, the construction of additional storage capacity at reservoir X and new reservoirs at points Y and Z, plus several new interconnecting trunk mains.

• **Questions which arose were:**

1. Will the combined system provide adequate capacity in all areas?
2. Will the flows to and from reservoirs be responsive to differences in levels among water surfaces at the various reservoirs?
3. What should be the discharge ratings of pumps?
4. Will the system have capacity for several years' load growth?

• **Put to the analyzer**—These questions were answered on the original research-model analyzer at Cornell University, set up according to the plan indicated on the map. Area loads were represented by the fifteen discharges indicated by arrows. The number of loads was limited by the number of load circuits available on this analyzer. A more perfect representation could have been achieved with an analyzer equipped with a larger number of load circuits.

Diameters of mains ranged from 6 to 24 in., and lengths varied from 300 to 3,800 ft. The Hazen-Williams coefficient C was assumed at the outset to have a value of 100 for all mains already in service, and of 130 for proposed new 16-in. mains.

To check the assumed value of 100, corresponding values of friction head

> ***"I am sure that our initial contracts would have been delayed one to two months if some other method of computation had been used." G. E. Rickard, Superintendent, Bureau of Water, Binghamton, N. Y.***

loss and flow rate for the existing mains between reservoir W and the pumping station were determined from field tests. An analysis of this section of the system showed that the actual head loss was 55% greater than the head loss based on an assumption of 100 for the value of C. Since the corresponding average value of C would be 79, this revised value was adopted for all subsequent analyses of the system. Any results of the studies should therefore be conservative; conditions would improve if the pipes were cleaned.

• **Several conditions explored**—A series of seven analyses of the complete system was made. Salient results of these analyses are presented in the accompanying table, in which the altitude of the pumping station discharge is called zero for reference. Analyses 1 to 4 show the effect of changing relative water levels in the four reservoirs, with a pumping rate of about 10 mgd and a normal peak load of some 13 mgd distributed to areas as shown. The results show that the network flows are responsive to changes of relative levels in the reservoir surfaces, tending to maintain nearly uniform head at the reservoirs under normal full-load conditions. The head needed to overcome friction losses between the pumping station and the reservoirs is of the order of 4 to 10 ft at peak load.

Analyses 5 to 7 were conducted with a constant level of 212 ft at the four reservoirs, but with varying load conditions. For each of these analyses, flows to individual loads were altered to conform to reasonable assumptions of distribution of consumption by areas. Many values of useful data not given in the table also were recorded.

In analysis 1, a complete record was made of flow rate and head loss for each pipeline in the network. In all analyses, flow rate in each feeder leaving the pumping station was recorded.

As a result of these studies, authority was obtained to proceed with the necessary installation of reservoirs, pipelines, and pumps to provide a suitable margin of safety for future growth of load in the city.

• **Time consumed**—The analyses consumed one day devoted to rearrangement of analyzer jacks and sockets; the original research model at Cornell University was not then properly equipped to represent conveniently an irregular network pattern of this scope. Another day was consumed in selecting circuit elements to represent the distribution system, connecting the electric circuit, adjusting loads, and recording all the flows and head losses for analysis 1. Analyses 2 to 7 inclusive were all conducted in a third day, including the time lost between successive analyses in deciding what conditions should be changed for following studies.

The example given here is typical of some of the problems that may be studied rapidly and conveniently by means of the pipeline-network analyzer employing Fluistors to represent pipelines. This particular study was formulated by G. E. Rickard, superintendent of the Water Department for the City of Binghamton.

• **Other uses**—Other problems that can be solved include the selection of most economical routes and diameters for main installations, choice of best locations for supply points, and the effect of fire-fighting upon the performance of the network.

The analyzer is equally well adapted to studies of pipeline networks used in distributing gas, steam, oil, air, or other fluids. It may be employed readily for other ranges of pipeline dimensions and flow rates by the use of appropriate scale factors to relate electric and fluid quantities.

Here's what makes the method simple

Electric currents and fluid flows, voltage drops and head losses have long been recognized as analogous. And electrical devices have been designed to ease hydraulic analysis of complicated pipeline networks (ENR Sept. 22, 1949, p 19).

These devices have employed linear resistors across which voltage drop varies in direct proportion to current. But in fluids, friction head loss along a pipe normally varies nearly as the square of the flow rate. This has meant that where linear resistors have been used, successive approximations were needed to arrive at an answer.

•**Non-linear analogy** — A pipeline network analyzer now is commercially available that reproduces electrically the non-linear relationship of head loss to flow (ENR May 3, p 72).

This new product, known as the McIlroy Pipeline-Network Analyzer, employs specially designed tungsten filaments in evacuated glass bulbs, as non-linear resistors to represent pipes. The non-linear resistors, called Fluistors, are constructed in a large variety of ratings appropriate to the range of pipeline dimensions and roughnesses normally encountered in distribution and transmission practice.

In operation, the voltage across any Fluistor automatically varies as the 1.85 power of the flow rate, giving a complete analogy to the Hazen-Williams formula, and a satisfactory approximation to any square-law formula or to the Colebrook-White adaptation of Darcy's law.

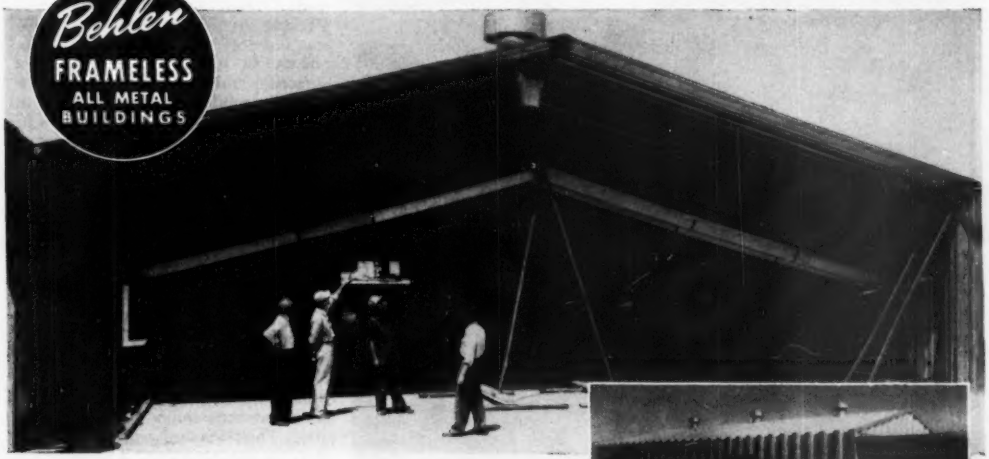
• **Answer found directly** — An electric circuit comprised of Fluistors is in effect a working model of a pipeline network. Its use involves no trial-and-error steps except for pipelines with unusually high velocities when a square-law formula is employed. In these instances, a simple modification in procedure gives acceptable results. Normally, final desired results are found from indications of analyzer instruments as soon as conditions at loads and sources are adjusted to the desired values. The only computation necessary is a change in scale from pipeline coefficients to Fluistor coefficients.

(For detailed explanation and description of principles involved see the author's article, "Direct-Reading Electric Analyzer for Pipeline Networks", in the Journal, American Water Works Association, of April, 1950. This paper won the 1950 Goodell prize, awarded by AWWA and sponsored by Engineering News-Record.—Editor)

ANALYSES OF THE BINGHAMTON SYSTEM

				Conditions at reservoirs							
				W		X		Y		Z	
Analysis	Total load mgd	Pumping rate mgd	Pumping head ft	El ft	Discharge mgd	El ft	Discharge mgd	El ft	Discharge mgd	El ft	Discharge mgd
	Constant load and pumping rate, reservoir levels varied										
1	13.16	10.18	219	212	0.11	212	1.26	212	0.90	212	0.71
2	12.92	10.00	216	212	0.58	205.5	0.38	212	1.01	212	0.95
3	13.02	9.90	217.5	212	0.29	212	1.65	204.6	0.45	212	0.73
4	13.09	10.00	222.2	212	−0.54	218	2.54	212	0.66	212	0.43
	Constant reservoir levels, load conditions varied										
5	17.63	14.7	226.9	212	−0.21	212	1.35	212	0.83	212	0.96
6	10.15	6.9	214.3	212	0.26	212	1.42	212	0.78	212	0.69
7	7.13	0	206.1	212	0.88	212	3.25	212	1.40	212	1.60

FRAMELESS *Monocoque* Construction



Exterior, showing front entrance being finished in brick for offices. Above: Contractor Jack Mainelli explaining construction to owner and friends. Workmen using a roof panel as a scaffold.

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Erecting a Behlen Frameless All-Metal Building is so simple and easy:

No framework to construct . . .

No support columns to put up . . .

No truss members to build.

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This is accomplished by panels of deeply corrugated sheet steel (or aluminum) extended by means of bolted connections, from footing on one side up and over the roof ridge to footing on the opposite side.

Monocoque Construction. The metal panels not only form the weather-proof shell of the buildings but also serve as the structural frame.

Rigid-frame Type. Each panel becomes in itself a support arch with the strength of an I-beam of equivalent weight. Roof Beam Action, accompanying this construction, further increases strength and rigidity. The buildings withstand full required snow and wind loads in any locality; internal pressure rating is same as external.

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F. Perry Johnston
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Houston, Texas

Unobstructed areas up to 41 x 74 ft built on this job

Flexible square steel pans form low-cost modular roof

MODULAR DESIGN has established a practical and economical framing system for reinforced-concrete roofs.

This design first proved itself in construction of a community center, just completed at Spring Branch, Tex.

Unobstructed areas up to 41 x 74 ft were obtained and the only inside finishing required for concrete was two spray coats of white paint.

• Module is 3 x 3 ft—Key to the system is a pan form made of standard 52-in. square sheets of 16-gage steel. A scant 30-in. square on top, the pans have 8-in. sides with the remaining 3-odd inches in each side bent flat and crimped to form half of a beam soffit. Separate corner pieces close the pan. Their removal permits sides to flex, for easy stripping. The resulting module is 3 x 3 ft, joists having 3-ft spacing both ways.

In the Spring Branch community center the roof covers 6,000 sq ft. Contract price of $47,000 includes $14,885 for roof plus about 600 sq ft of concrete cantilevered canopy.

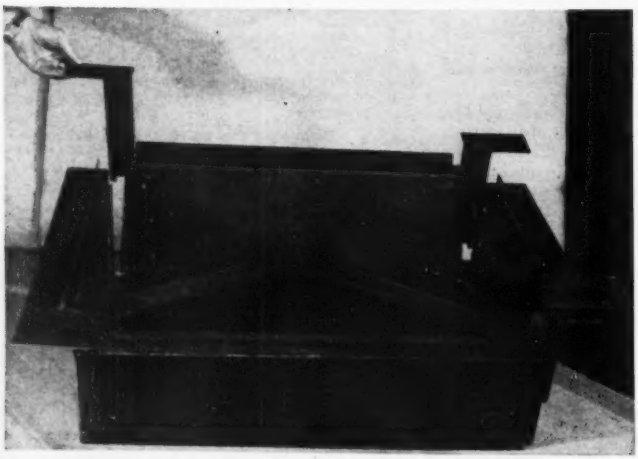
One story in height, the building is L-shaped, with a straight 140-ft. front. It rests on underreamed footings and grade beams. The floor is a 4-in. concrete slab on sand fill. Exterior walls are brick. Interior partitions, separating a post office, a print shop, a grocery store and offices for the Spring Branch School Board, are of plastered frame construction.

• Largest space 41 ft wide—Main framing consists of reinforced concrete columns supporting reinforced concrete beams. There are two interior beams that, together with exterior beams, enclose unobstructed bays 74 x 41 ft, 35 x 41 ft and 31 x 56 ft. The last-named is the L-section, with its 56-ft dimension parallel to the 41-ft dimensions of the first two.

This main framing, in combination with the pan-modular roof, made roof design a modified two-way slab problem. The reinforcement necessarily was concentrated at 3-ft centers both ways, on the joists.

Joists are 8 in. deep, covered by a 2½-in. slab. Joist soffits are 6 in. wide. Overall roof weight is 63 psf. Designed for the local-code live load of 30 psf, it is built of 3,750-psi concrete. This strength was sufficient to eliminate compressive steel.

In the early development of this roof system, several problems had to



MODULAR PAN FORM (upside-down here) has wedge-in slot corner keys that lock the form during use. When removed, the keys allow sides to flex inward so form may be stripped easily.

be solved. First, to form the concrete joists, some economical method had to be devised. Wood forms were ruled out as they could not be used often enough to make them economical. To make forms out of sheet steel seemed to be the best answer. However, as such forms were not available the J&B Mfg. Co. of Houston was consulted.

It was pointed out to the company that if it made enough metal pans for this project, these same pans would have 100% re-use on similar work to be designed in the future. Such full re-use cannot be obtained with the well-known one-way pan system because there is bound to be a loss when the pans are reworked to fit various job conditions. The modular two-way pans, therefore, would yield more economical use in the long run. Moreover their owner's competitive position would be improved on similar jobs.

Before design began, J & B quoted a form-rental price that would be firm for a contractor getting the job. However, it was agreed that the design would include a construction joint at the interior beam adjacent to the 74 x 41-ft bay. This joint cuts the over-all area roughly in half, so half could be formed at a time and forms would get one re-use.

• **Considerations**—In developing these "dome" type steel forms, the makers had several factors to consider. First, since the concrete ceiling was to be exposed, lap joints had to be eliminated, and all forms held true with tight joints. Second, the forms had to be built so that they could be set quickly on skeleton framework, which consisted of 4 x 6 stringers and adjustable shores spanning in one direction.

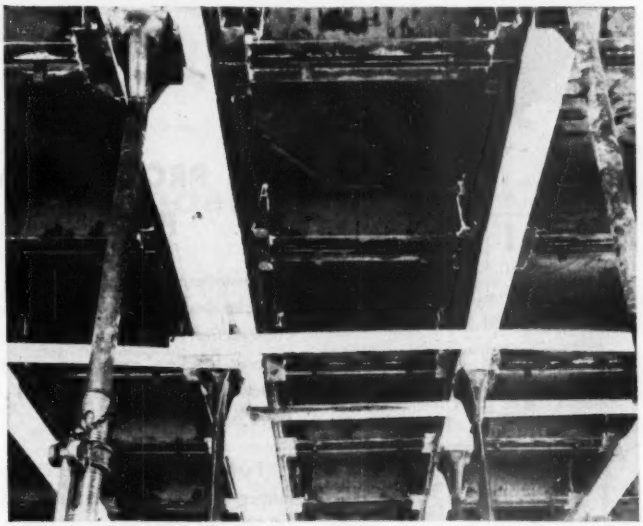
The first two objectives were obtained with the aid of light-weight angle lugs welded almost full-length to the form's exterior soffit surface. On one pair of opposing soffits, the angles stood flush with the edge, so they could be "clothes-pinned" to adjacent angles to close the butt-soffit joint. On the other pair the angles stood 2 in. back from the edge. In this position the angles would bear laterally on the stringers while the soffit edges would join their neighbors at the stringers' centers.

The third objective was obtained by tapering the form sides slightly and making a "wedge-in-slot" corner-closing piece, or key. Removal of this key would permit the sides to flex inward, for ready stripping.

Photograph illustrates the pan form and its installation. Contract cost of form rental, plus shoring, erecting and stripping was $3,200.

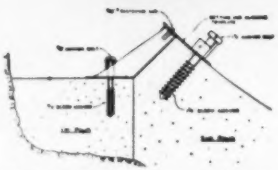
Contractor on the work was the Harris Construction Co., Houston.

READY FOR CONCRETE—Mesh will reinforce 2½-in. slab over pans. Main steel, in channels, takes the joist tension. A modified two-way slab design was used.

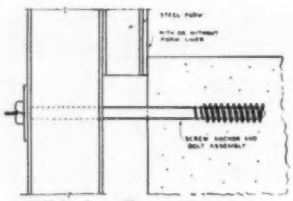


ONE-WAY SUPPORT comes from shored 4x6 stringers over which form lugs fit (stringer at left supports a main beam). In other direction, lug is clipped to its neighbor.

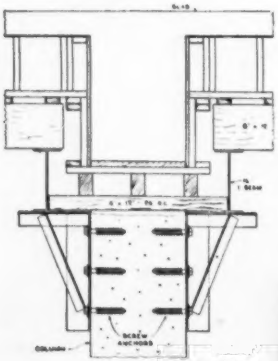
READY FOR PAINT—This is practically the way the ceiling will look in service. With forms stripped, two spray coats of paint will be the only further treatment.



For Anchoring Tunnel Forms



With Cantilever Forms on Dam Construction



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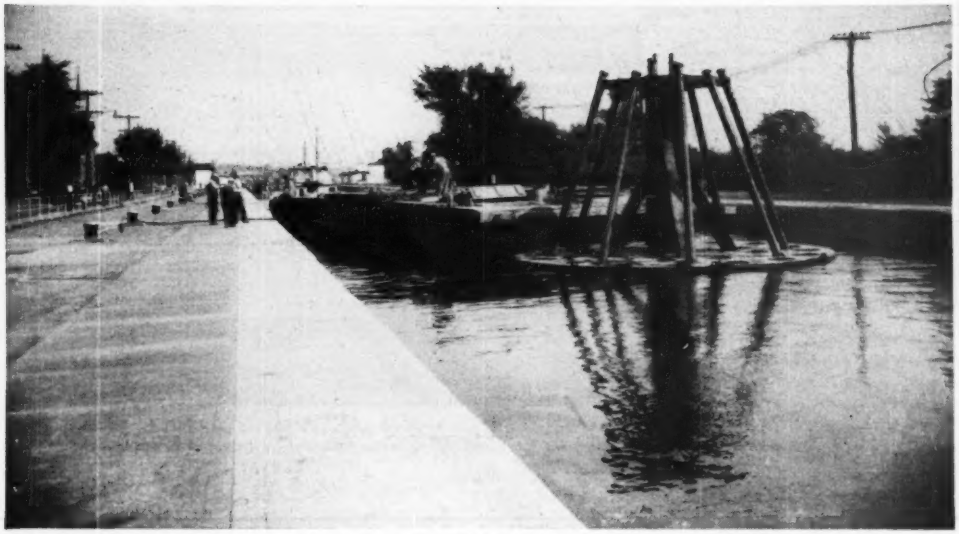


"AQUAPAD" foundation for a navigational light in West Neebish Channel is towed through the Canadian Soo Locks.

Here's a new type foundation for marine structures

DEEP-WATER ANCHORAGES for navigational lights—and other fixed marine structures—frequently present difficult installation problems, due to swift currents and other vagaries of nature.

Another big problem—once they have been installed—is how long such anchorages can withstand the heavy pounding of waves, drift, floating ice, and ice pressures to which many are subjected.

Most of these problems have been solved with the successful development of the U. S. Coast Guard's so-called "Aquapad;" the first installation of which is for the West Neebish Channel Light No. 13, in the St. Marys River about 20 miles below the Sault Ste. Marie Locks.

• **What is it?**—The Aquapad is essentially a concrete-ballasted, steel-fabricated circular foundation, 29 ft in diameter and 7 ft thick. In its final position, it rests on the bed of the channel, anchored in place by steel pipe expansion-piling driven to bedrock, or tip refusal.

A heavy structural framework extends above the water surface to support a steel superstructure which, in turn, supports a navigational light, or any other marine structure that may be desired.

• **Fabricated in three sections**—Nothing, it seems, has been overlooked in designing the Aquapad for efficient and foolproof installation. Although it is a bulky structure, its design provides for all-welded shop fabrication and shipment in only three sections to be assembled on shore for launching into the water. Air-tight compartments enable it to float in the water for towing to the installation site. Some preliminary concrete ballast is added for towing stability.

Upon arrival at the site it can be sunk into position and anchored to the bottom of the channel by driving the piles vertically through special pile tubes built into the structure. Pile heads are then locked to the pile tubes and the interior of the Aquapad is completely filled with concrete—heavily reinforced with previously installed reinforcing bars—thus firmly bonding together all piles, the Aquapad and its structural steel framework.

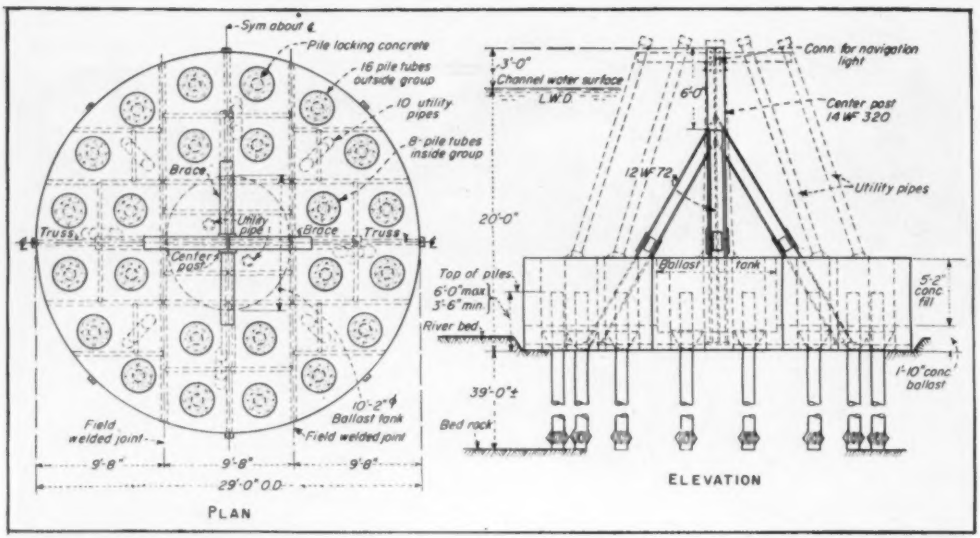
• **Heavy steel framework**—The structural framework of the Aquapad is heavy. Two vertical trusses are located on the centerlines of the circular foundation. They are placed normal to each other and intersect at a 14-in. wide-flange vertical post located at the center of the structure. The trusses have 8-in, 20-lb beam top chords and 6-in, 16-lb beam bottom chords, together with split T-beam diagonals and angle verticals.

Both the 5/16-in steel bottom cover plate and the ⅜-in deck plate are reinforced with split T-beams, with their webs welded to the plates. The ⅜-in circular outside plates also are reinforced with verticals and curved stiffener angles.

The 14-in. WF center post, extending 3 ft above water surface to carry the superstructure that supports the navigational light, weighs 320 lb per lin ft. It is braced securely in its vertical position by four 12-in, 72-lb WF beams embedded in the concrete ballast. Their tops are beveled and welded to the center post about 3 ft below water line.

• **Ballasted for stability**—After launching, concrete ballast is placed in the Aquapad to a depth of 18-in in the 9-ft dia ballast tank in the center of the structure, and to a depth of 22-in in the remainder of the shell. The primary purpose of this initial ballast is to insure stability—i.e self-righting action—to the floating structure during towing and sinking into position.

This initial ballast gives a 6½-in freeboard to the shell while floating with all structural steel framework and utility pipes in assembled position.



SPECIAL EXPANSION PILES—driven through pile tubes—anchor the "Aquapad." Temporary utility pipes permit its being filled with concrete from the water surface.

• **Utility pipes**—The Aquapad is equipped with ten 8-in. ID utility pipes. Two of the pipes extend into the ballast tank for flooding or dewatering during sinking or raising the structure. The other 8 pipes are mounted over openings in the cover plate. All 10 pipes are used for completely filling the structure with concrete after it has been sunk into position, piles driven and the ballast tank dewatered.

The tops of the utility pipes are braced to a framework mounted on the vertical center post of the superstructure. They extend above the water surface when the structure is seated on the bottom of the channel. After the installation is completed, they are screwed out of their collars and removed.

• **Pile tubes**—Also built into the framework of the Aquapad are 24 vertical pile tubes, extending completely through the structure. They serve three purposes: to permit driving the steel pipe piles; to prevent water entering the shell; and to lock the pile heads to the Aquapad by filling the tubes with concrete after pile-driving.

• **Expansion pipe piles**—Another innovation is that all pipe piles are designed so they will expand near their lower ends when driven to rock or tip refusal. This is done by providing twelve ¼-in vertical slots, 17-in long in the pipe shell, and terminating 6 in above the tip. This expansion feature increases the pile resistance to withdrawal against overturning moment of the structure.

As tip refusal begins to take place, the sections of pile wall between the vertical slots begin to buckle outward. Inward buckling is prevented by an inner pipe sleeve.

Outward buckling will continue until the inner sleeve comes in contact with a ring sleeve welded inside the pile above the inner sleeve. This arrangement permits a 5-in downward movement after the pile tips meet refusal, resulting in maximum expansion of the pile wall.

Other innovations in the design include plate eyes spaced around the top of the structure for towing, and for the attachment of lines to skid the structure along the bottom if desired. These lines also can be used to control the effect of river current during sinking operations.

Another plate eye is welded to the top of the 14-in., 320-lb WF center post. Although the structure is stable and will sink in an upright position without the aid of lines, it will glide some in sinking if lines are not used. A line to the top of the center post permits the structure to be suspended below the water surface under any desired load up to 9,000 lb, by varying the amount of water ballast.

When the ballast tank is completely filled with water the structure has a 9,000-lb holding force against the bottom of the channel.

• **Emergency sinking**—During towing operations, one utility pipe leading into the ballast tank is left in place in the event it becomes necessary to sink the structure in an emergency. This permits sinking it to the bottom in as much as 30 ft of water during storms or delays in installation operations. By dewatering the ballast tank the structure can be refloated to resume towing.

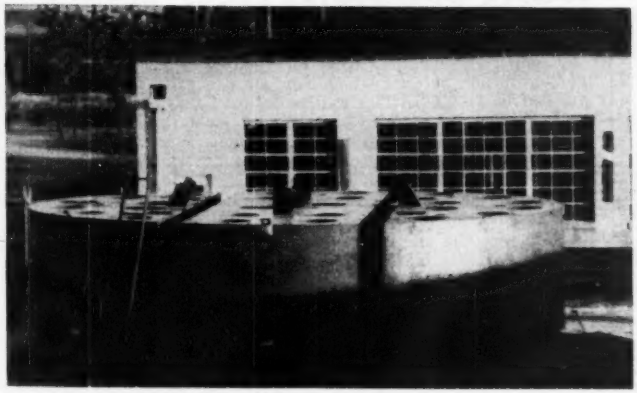
After the Aquapad has been sunk into position, all 24 pipe piles driven and concreted in place in their pile tubes, the ballast tank dewatered, and all ballast concrete placed, the utility pipes are screwed out of their collars from above the water surface. This completes the installation except for the superstructure.

• **West Neebish light**—The Aquapad for West Neebish Light No. 13 was fabricated in Chicago and shipped on flat cars in three sections to Sault Ste. Marie, Mich. It was unloaded onto launching skids at the edge of a slip, just north of the Soo Locks, and assembled.

The Aquapad was towed through the locks and about 20 miles down the St. Marys River to the location for light No. 13. For towing, it was made fast to the stern of a barge by wire rope run through plate eyes welded to the steel shell.

Arriving at the site, it was moored to a temporary cluster of piles for five days, due to a delay in leveling the bottom of the river to receive the Aquapad.

It was sunk in position one afternoon during a steady rain and, after



FABRICATED IN THREE SECTIONS for rail shipment, the 29-ft dia. by 7-ft thick foundation shell was reassembled by field-welding before launching and towing to the installation site.

being seated, 9 piles were driven through their pile tubes to secure the structure in position. The remaining 15 piles were driven the next day.

Despite a 4-mph current at the site no difficulty was experienced in controlling the sinking of the Aquapad. In fact, the sinking could be halted entirely with the shell bottom just off the river bed due to the pick-up buoyancy of the utility pipes as they were submerged, and by carefully controlling the water ballast. These characteristics permitted a final check on the location just before final seating of the structure.

• **Seated on the first try**—The Aquapad was seated in its final position on the first try. Concrete for sealing the piles in their tubes was placed by tremie; that used for ballast was poured directly into the Aquapad through the utility pipes.

The superstructure for supporting the channel light was constructed under a separate contract. It was bolted to the center post extending above the water, and can be replaced if destroyed by collision or ice conditions.

The single 14-in, 320-lb WF center post, with its four 12-in, 72-lb WF braces, was used in this location to minimize the area subjected to ice pressure.

The type of frame that extends from the Aquapad above the surface of the water depends upon the superstructure it is intended to support. It can have almost any form desired as long as it meets design requirements. It can be in the form of posts, multi-legged towers, bents, or shell forms for concrete piers.

• **Designer and builders**—The Aquapad as well as the expanding piles were designed and developed by the late John P. Emshwiller, of the U. S. Coast Guard's civil engineering design section. Government applications have been made for patents covering various features of the structure.

Robt. H. Barnes, Sault Ste. Marie, Mich., was the general contractor. The Aquapad was fabricated by the Midwest Iron Works headquartered in Chicago.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Architect's compensation

An architect was employed to prepare plans for the remodelling of a public building for which the sum of $400,000 was appropriated. A local statute limited expenditures for public works to the sum appropriated for the same. The architect was to be paid a fee of six percent of the cost of the work, $3,600 of which was to be paid upon the completion of the preliminary work.

The architect prepared plans and estimated that the work could be performed for the amount appropriated for the job. The lowest bid obtained for the job was $863,000, whereupon the project was abandoned. The architect then brought an action to recover for services rendered on the basis of the contract percentage of the low bid, less the $3,600 received for the preliminary work.

The architect was denied any recovery on the ground that he was charged with knowledge of the limited power of the board and of its intention not to spend more than $400,000 on the project.[1] The court in its opinion, quoting from another case,[2] stated: "Where an architect is employed to prepare plans for a building to cost not more than a certain sum, or on condition that the building can be erected for a certain sum, it has usually been held that the architect is not entitled to compensation unless the building can be constructed for the stipulated amount."

"Where an architect is employed by the state or by a political subdivision thereof, it has generally been held that he may not recover compensation for preparing plans for a structure which will cost more to erect than such governmental unit is permitted by law to expend for the purpose."

"The rule first quoted has been properly subjected to modification where the cost agreed upon by owner and architect was not substantially exceeded.[3] This modification would, of course, not care for the very wide variance, over 100%, in the present case."

(1) Beacham v Greenville County, 62 S. E. 2d 92, Supreme Court of South Carolina, Nov. 14, 1950.
(2) 127 A. L. R. 410, pages 411-413.
(3) 127 A. L. R. 412.

Acceptance of defective work

A contractor's liability is fixed by the contract. In building and construction contracts it is implied that the building or structure will be erected in a reasonably good and workmanlike manner and when completed shall be reasonably fit for its intended purpose.

Where the defects in the work are not immediately apparent, the owner, by paying the contractor and using the building for some time, does not unconditionally accept it and thus waive his rights when its latent defects are brought to light.

One can never be said to waive his rights unless he knows what his rights are at the time of the alleged waiver.[1]

(1) Hall v MacLeod, 62 S. E. 2d 42, Supreme Court of Appeals of Virginia, Nov. 27, 1950.

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LEGAL DECISIONS . . .

Right to withdraw bid

A contractor submitted a bid for the construction of certain buildings at a cost of $177,153. This was the low bid and it was accepted and the contract was awarded to him. The proposal provided that the contractor and his bondsman would pay the sum of $8,857 in the event the contractor failed to enter into a contract in accordance with the terms of his bid. Another contractor bid $203,758 for the job.

The proposal directed that there should be an itemization for the construction of a vocational agriculture and grandstand building. The low bidder set $68,410 as the cost for this work while the other bidder gave a price of $89,905. The architect's estimate of the cost of this item of work was $89,340.

In preparing the bid, one of the employees of the low bidder listed an item in the adding machine as $2,689, whereas the correct amount was $26,289. This mistake was not discovered until after the bids were opened, when an officer of the low bidder suspected that there must have been a mistake in the bid. When a check of the estimate revealed the error he immediately notified the architect. However, the school district insisted upon full compliance with the terms of the proposal. The contractor then brought an action[1] to recover the sum of $8,857 that the school district was withholding pursuant to the terms of the proposal.

Testimony produced at the trial established that the error in the bid was a clerical mistake and did not result from any error of judgment in computing the cost of labor and material. The mistake was unilateral. The school board contended that under such circumstances a bidder may not be relieved of his bid except in a case where it is shown that the party receiving the bid knew or should have known, because of the amount of the bid or otherwise, that the bidder had made a mistake.

The court in its opinion stated: "While we think it could be said that the difference in the bids on the vocational agriculture and grandstand building was such as to indicate to the school district that a mistake had been made and thereby bring it within the rules applicable to mutual mistake, the bidder has the right under the facts shown by the record to withdraw its bid even though it was the result of a unilateral error."

The court in its opinion further stated: "The rule under such circumstances is: When the mistake is so fundamental in character that the minds of the parties have not, in fact, met, or where an unconscionable advantage has been gained by mere mistake, equity will intervene to prevent intolerable injustice where there has been no failure to exercise reasonable care on the part of the bidder and where no intervening rights have accrued. In the case before us the mistake was discovered and notice thereof given to the school district within four days after the opening of the sealed bids. It was a fundamental mistake as distinguished from an incidental one. While the bid of the Olsen Construction Co. had been accepted and the contract awarded to it, no contract had been entered into: it was wholly executory. Failure to use reasonable care on the part of the Olsen Construction Co. is not shown and rights of third parties had not intervened. The parties could have been placed in status quo at the time of the withdrawal of the bid."

The contractor was allowed to recover the money retained by the school district for failure of the low bidder to enter into the contract.

(1) School District of Scottsbluff v Olsen Construction Co., 45 N. W. 2d 164, Supreme Court of Nebraska, Dec. 20, 1950.

Mechanic's liens

A materialman brought an action to enforce a mechanic's lien against a certain piece of property for the construction of which he had furnished the contractor with materials. At the trial, the evidence showed that the contractor had abandoned the job before it was completed and that he had been overpaid for the work he had done up to the time he abandoned the job. Under these circumstances, the court held that since the owner did not owe the contractor anything, the materialman could not have any lien against the property of the owner.[1]

The court in its opinion, in referring to other cases on this subject stated: "It is clear that under the decisions in Rose v. Davis, 188 N. C. 355, 124 S. E. 576, and Payne v. Flack, 152 N. C. 609, 68 S. E. 16, plaintiffs can enforce no lien against the building for materials furnished the contractor. The owners paid in advance for more than what the contractor had earned up to the time he quit the job, and at no time thereafter was he entitled to further compensation under his agreement. This defeats plaintiff's lien."[2]

(1) Roberts & Johnson Lumber Co. v Horton, 61S.E.2d 100. (Supreme Court of North Carolina.)
(2) Dixon v Ipock, 212 N.C. 363, 193 S.E 392; Brown v Burlington Hotel Corp., 202 N.C. 82, 161S.E. 735.

READER COMMENT

Beware the superlative

Sir: Several times lately press articles have called Mt. Morris Dam "the largest in the state," and the same statement appeared in your July 26 issue. As the designer of Mt. Morris Dam, I know it is not the "largest" no matter how that word is defined. I have always publicly stated that it is the fourth highest dam in New York State and the seventh highest masonry dam east of the Mississippi. It is exceeded by Kensico (307 ft); New Croton (294 ft) and Ashokan (252 ft) dams of the New York City water supply and Fontana (480 ft), Hiwassee (307 ft) and Norris (265 ft) of the TVA dams. These heights are from the deepest excavation near the base line to the deck.

If based on length along the axis, the Mt. Morris Dam is still exceeded by the others since it is only 1,026 ft long at deck level and 1,263 feet between the shafts to top tunnels at the ends of the curtain (or cut-off) walls. If "largest" means volume of masonry it still is smaller than the others mentioned since its volume will not exceed 800,000 cu yds of concrete.

The dam, however, will be highest "dry" dam in the state since it will be used exclusively for flood control. It will have only 610 acres of dead storage and no pool for recreation, power or river regulation. All 9 sluice gates will be open all the time except during a flood that would exceed the channel capacity below the dam.

The operations tower you state will be built next year is now being built and will extend 36 ft above the deck of the dam. There are 21 monoliths in all, only 11 of which (550 ft) are overflow or spillway monoliths. Five of the non-overflow monoliths are on the right bank and six on the left. Six spillway and two right abutment monoliths are "topped out."

BERNARD R. FULLER
Asst. Chief, Engineering Division
Buffalo District Corps of Engineers

On rubble costs

Sir: I have read with great interest your article on the damage to Chicago's streets by trucking Congress Street rubble to the Outer Drive at Foster Ave. Your caption "Hidden Costs" was most appropriate (ENR July 5, p. 53).

In an article I wrote on this operation last February, I pointed out that the cost of damage to our streets would be inestimable. I also explained how the excavating contractor included the cost of hauling the Congress fill in his contract, and that the current rate on this type of trucking was 10¢ a ton mile. The distance is eleven miles, or round trip for the truck of twenty-two miles. I conservatively figured it 16 miles. At .10¢ ton mile or .12¢ cu yard mile × 16 miles or $1.92 per cu yd × 1,700,000 cubic yards amounts to $3,292,000.

You list the cost of hauling the rubble at $850,000. Whoever furnished these figures probably had in mind the extra cost of the new bulkhead required for the use of the Congress Street rubble, which amounted to approximately $850,000. The Park District claims that the 1,700,000 cubic yards of Congress rubble will cost the city *nothing*. They claim a saving of $1,500,000, or the difference between the added cost of the redesigned bulkhead and the cost of sand at $2,300,000.

There have been many confusing statements released to the press. The spokesman for the Park District pointed out there would be no more damage to the streets by using rubble than sand in that they would both have to be hauled by truck to the site. That of course is ridiculous. The sand comes direct from the Indiana shores by boat to the Outer Drive at Foster Avenue.

HARRY W. GAHAGAN
Realty Co.
Chicago, Ill.

Flagging remedy

Sir: We have just returned from a two week vacation trip through the West, during the course of which we ran into considerable road repair and construction work.

Driving South on one stretch, we were first in a long line of cars and trucks held up for one way traffic. When the Northbound line of traffic came through, the car which was apparently last in line breezed on through without surrendering the flag. The young man who had flagged us down held us for an interval to see if another car were coming through.

To eliminate this problem why couldn't the red flag be attached to the front bumper of the last car in some manner? Then, at least, if the car doesn't stop and give up the flag, the man waiting will see it as it goes by. I doubt that the souvenir value is so great that the driver will take the trouble to stop and detach it while going through the detour.

MRS. LOYD RECKNER
Harvey, Ill.

STOP booming up and down to spot bucket loads!

Place your clamshell QUICK over the EXACT spot where you want to dump the load, without a man there to guide it! Turn, spin, snub or cast your bucket directly from the cab!

GET THE TOPS IN BUCKET CONTROL

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No—you don't need a man to spot the bucket when you use the TAG MASTER. With the TAG MASTER you put 'er right down in any spot or corner, or lower through waling and bracing on a trench job—right from the cab! No delay. No danger.

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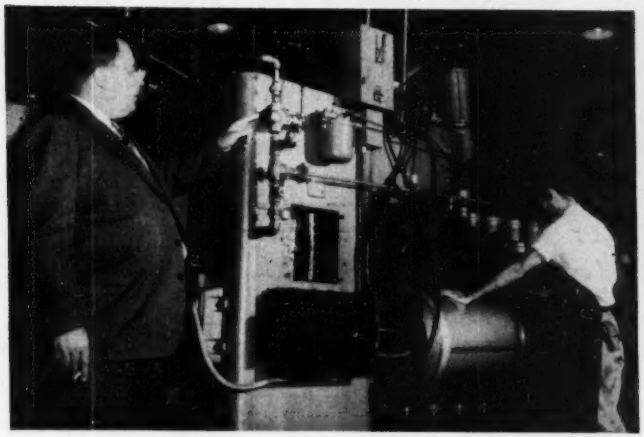
New 1638-Family Apartment Project at Bayside, Queens—The housing development shown above, now nearing completion in the Cunningham Park section of Queens, New York City, is called Windsor Park. It is built on a 46-acre tract, and consists of eighteen 6-story buildings. The structures are elevator-equipped and contain attractive apartment units of 3, 3½ and 4½ rooms. Underground garage space is provided for 648 automobiles. In addition, the project has off-the-street parking facilities for 990 automobiles on the garage roofs. The impressive red brick buildings comprising Windsor Park have steel frameworks of Bethlehem Structural Shapes. *Owner and Contractor:* Windsor Park Corp., Glen Oaks, N. Y.; *Architects:* Schulman and Soloway, Forest Hills, N. Y.; *Consulting Engineers:* Blitman and Tischler, New York City; *Steel Fabricator and Erector:* Dreier Structural Steel Co., Inc., Long Island City, N. Y.

BETHLEHEM STEEL

FIELD AND OFFICE



AUTOMATIC SHUT-OFF VALVE cuts water flow when welding machine is not operating—part of plant-wide water conservation effort.

SPECIAL pan catches the cooling water, routes it to recirculator.

Want to save dollars? Quit wasting water

Special processes for reclaiming used water will save Solar Aircraft Co. (San Diego, Calif.) about $17,000 annually in water bills.

Impetus for their development came from the critical water shortage in San Diego. But, corrollary economy of operation will outlive the current shortage.

Del Wolfington, plant engineer, supervised design of specially built equipment to recirculate and soften water with resultant savings ranging from 50 to 90% on various applications. The plant formerly used about 12 mg monthly—90% of it for cooling purposes in welding and other operations. The current saving, with only partial installation, is more than 2 mg a month and is ultimately expected to pass 6 mg monthly.

Cooling water remains clean; water saving units are portable, requiring no cutting through floors; valve control is automatic.

• **The money-saver**—For a spot welder, the recirculating unit (including 50-gal tank, centrifugal pump and pipe) cost Solar about $285. The tank is made of stainless steel sheet stock, rolled and roll-welded. The investment in this equipment for spot welding machines alone has already totalled about $25,000.

The system includes large pans built under each machine to catch the water and send it to the recirculator. Solar found that in some instances one recirculator could handle more than one welding machine.

On some machines it was found impractical to recirculate the water—the water either gets too hot when used for cooling, or the parts being welded are too large to enable construction of pans to retrieve the water. In these cases, electrically operated water control valves were installed to shut off the flow when the machine is not operating.

At present, Solar does not plan to manufacture water recirculating equipment for sale. However, the firm indicates it will answer all queries from other firms interested in making similar installations.

Solar computes its dollar savings on this basis: the 2 mg a month being saved at the present stage would cost $480 at local water rates in San Diego. The prospective 6-mg-a-month saving would thus mean a monthly dollar economy of $1,440, or $17,280 annually.

Because most of Solar's water is used for cooling purposes, the firm has never had a disposal problem of contaminated water, thus the problem of waste disposal was never an issue in this operation.

Looking for further water conservation, Solar has rented water meters from the city which it is using to check consumption, department by department. A consulting engineer has been retained to offer additional suggestions. Employees constantly check for leaks and wastage.

An added dividend of the conservation effort: Community good will.

More rigid traffic control planned for Penn Turnpike

Plans for more rigid control of traffic on the Pennsylvania Turnpike are to be discussed at a seminar called for late August by Thomas J. Evans, chairman of the Pennsylvania Turnpike Commission.

Invitations are being sent to automobile associations, truck operators and drivers, safety engineers, the Interstate Commerce Commission, Pennsylvania's Public Utility Commission, its State Highway Department and Bureau of Highway Safety, to safety officials of insurance underwriters, and to representatives of the New Jersey and Ohio Turnpike Commissions.

In recent months there have been reports of frequent accidents on the Pennsylvania Turnpike in magazines and daily papers. On this Mr. Evans says: "Any accident occurring on the world's most famous highway is always front page news . . . . the Pennsylvania Turnpike from an engineering point of view is still the safest highway in the world."

MEN AND JOBS

ONTARIO HYDRO—Four men who are directing the "on-the-job" operations in connection with the construction of Ontario Hydro's $157,000,000 Sir Adam Beck-Niagara No. 2 development are, left to right, Lou Gallagher, general construction superintendent; Gordon Mitchell, project manager; William Fraser, field project engineer, and William M. Hogg, assistant field project engineer.

New Appointments

State, city and county

James M. Murray, city engineer, Colorado Springs, Colo.

Edwin F. Koester, H. F. McCult, J. H. Topkis, Henry P. Burrows Jr. and **L. H. Ryman** are members of the new parking authority at Wilmington, Del.

G. L. Ziemer is city engineer of Vinton, Iowa.

Frank J. Brince is the new city engineer of New Ulm, Minn.

E. C. Rodgers, for three years Madison County engineer at Jackson, Tenn., has resigned to take a business position at Memphis. His successor is **H. S. Langley.**

EXECUTIVE OFFICER—Col. H. R. Hallock has been assigned as executive officer of the Fort Worth, Tex., district, Corps of Engineers, succeeding Lt. Col. C. B. Lyle, Jr., now chief of the district's engineering division. Colonel Hallock is a 1937 West Point graduate.

ASSISTANT DISTRICT ENGINEER—Capt. W. W. Pearce has been appointed assistant district engineer, Vicksburg, Miss., district, Corps of Engineers; succeeding Capt. W. R. Hylander, Jr., ordered to the U. S. Military Academy as an instructor in physics. For the last three years Captain Pearce has been professor of military science and tactics at Oregon State College.

Honors

In recognition of his engineering accomplishments in support of the Korean campaign, Col Harold A. Stewart, chief of the Engineer Section, Headquarters and Service Command, General Headquarters, Far East Command, was awarded the Legion of Merit in a ceremony at Typio. Colonel Stewart was in charge of supplying General Headquarters Special Project units in Korea.

Arthur G. Hayden has been given an honorary degree of Doctor of Science by Ripon College, Ripon, Wis., his alma mater. He also studied civil engineering at M.I.T., and as a consulting engineer he has been identified with the development of many structures, including steel and concrete bridges, dams, lock gates, aqueducts, and grade separations. He has been chief design engineer of the Bronx Parkway Commission and the Westchester County, N. Y., Park Commission.

Retirements

Shribrick Heyward, a special assistant in the engineering department of the Du Pont Co., Wilmington, Del., has retired after 36 years with the company.

Geo. C. Miller has retired as chief engineer of the waterworks of Cedar Rapids, Iowa after 28 years.

Jesse F. Tarpley, Jr. a veteran of 36 years of service in the Army Department, including 24 years as a civil engineer in the Corps of Engineers, has retired. After he transferred to the Office of Chief of Engineers in 1932, Mr. Tarpley was assigned to the principal responsibility of reviewing plans and specifications for rivers and harbors, and flood controls projects covering the entire area of the United States.

Cyril S. Bruning, Principal Highway Engineer from Division 7 of the United States Bureau of Public Roads at San Francisco on June 30 after 34 years of service.

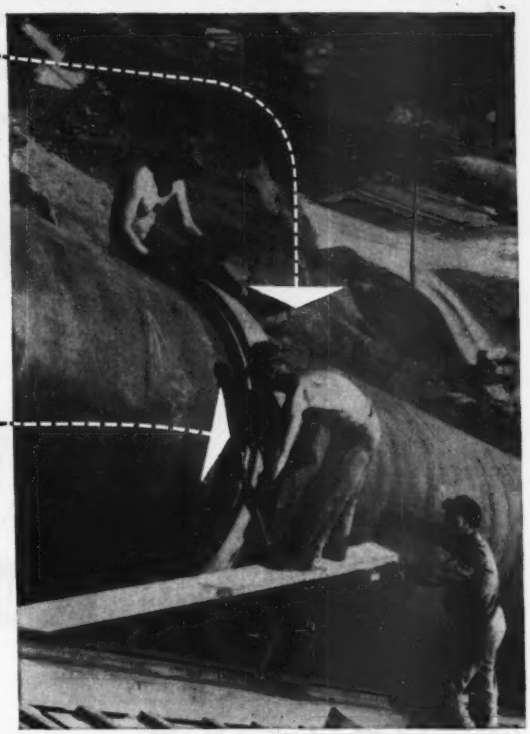
Berkeley Blackman, chief of the reports and planning section of the U. S. Corps of Engineers, South Atlantic Division, Atlanta, Ga., retired after 25 years service.

(*Continued on page 51*)

ELECTED PRESIDENT—J. Don Carpenter, vice-president of Gannett, Fleming, Corddry and Carpenter, was elected president of the Pennsylvania Society of Professional Engineers. He had previously been state director, chairman of ethics and practice committee, and vice-president.

from penstocks to water mains . . .

Dresser Couplings absorb pipe movement, prevent built-up stresses, speed construction

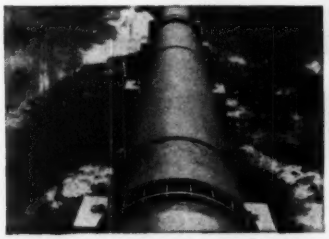


75″ penstock of the British Columbia Electric Co. One of three installed at Bridge River, using Dresser Couplings specially designed for the job. With Dressers, construction time was cut from months to weeks, due to simplicity of installation. And penstocks have remained bottle-tight under very high pressures, despite severe weather conditions.

On either exposed or buried lines, from ⅜″ to 72″ diameter or larger, your best protection against vibration or movement stresses is a Dresser Coupling. Each of these "flexible-tight" joints takes up to ¾″ expansion-contraction movement . . . up to 4° deflection . . . cushions your line at every joint. Specially compounded rubber gaskets soak up vibration like a sponge.

Installation of Dresser Couplings is simplicity itself. Any workman can install them; the only tool needed is a wrench. And fast? On a typical 48″ water line, 40 lengths of pipe were laid in one 8-hour day using a two-man joining crew.

Performance on half a million miles of pipe proves Dresser dependability.



Over swamps and marshy ground, where earth movement must be considered, Dresser Couplings keep Savannah's, new 14-mile, 42″ water supply artery completely tight.

In busy streets of Stoneham, Mass., simplicity and ease of installing Dresser Couplings gets the job finished sooner. Dressers absorb traffic vibrations.

Under New York Harbor, construction of the Brooklyn Battery tunnel was simplified by using Dresser Couplings to join air and water supply lines.

DRESSER

"FLEXIBLE-TIGHT"

COUPLINGS

Dresser Manufacturing Division, 319 Fisher Ave., Bradford, Pa. (One of the Dresser Industries.)

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Interesting engineering data on varied types of lines installed with Dresser Couplings. This is file material.

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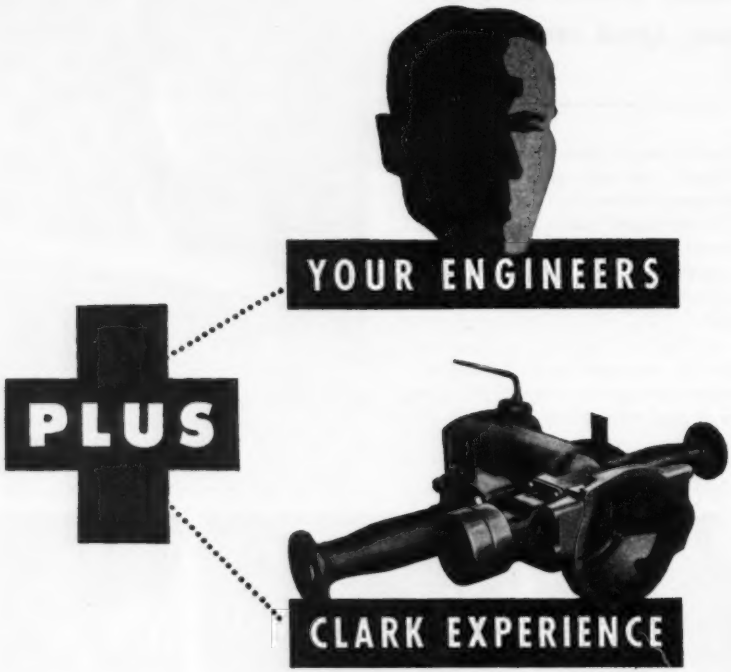

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Men and Jobs . . .

Burt E. Hull, vice president of the Texas Co and builder of oil pipelines after 46 years in the oil business.

William I. Morgan, general engineer for the Bureau of Reclamation at Grand Coulee Dam since 1938.

Harry Rutter, consulting engineer for the city of Gastonia, N. C., after serving as city official for 41 years, part of which time he served as city manager.

T. M. C. MARTIN has been named new director of the Bonneville Power Administration safety program, replacing Scott W. Hazen, Jr. transferred to the U. S. Bureau of Mines, Denver, as assistant district engineer. Martin has been with Bonneville since 1940 as engineer and transportation specialist. He will be responsible for formulating and carrying out safety programs involving 2,900 employees. He is a graduate of the University of Wisconsin and has a master's degree in transportation from Yale.

BIG CONTRACT—Both parties to a $19,000,000 construction contract here look at the project's progress as Glen Johnson, right, project manager for Morrison-Knudsen on Idaho Power Company's C. J. Strike Dam, points out power house foundations to T. E. Roach, president of Idaho Power, Roach's assistant R. E. Gale, and Harry Morrison, M-K president. (shirt sleeves) Ground was broken at Snake River site in December, 1950, with first of three 30,000 kw generators scheduled to turn next December. Spillway for earth-fill dam is nearly completed on opposite bank in background.

Loon Lake bridge in Douglas county, Oregon

modern bridge shows today's construction advantages of wood

For speed of construction and economy, it's hard to match modern timber engineering techniques used recently to build the rugged Loon Lake bridge shown above. Wood, glue-laminated for strength and pressure-treated for durability, was used with ingenious timber connectors to make the arches, struts, beams and deck. With wood's natural resistance to rust, corrosion, crumbling and spalling, Loon Lake now has a long-lasting, sturdy bridge able to withstand the daily pounding of heavy, fast traffic.

in wood, your best buy is
WOLMANIZED* pressure-treated LUMBER

Why? Because, in addition to wood's natural advantages, Wolmanized Lumber gives you positive protection against *rot and termites.* It's also paintable, clean, odorless, non-leaching, and non-corrosive to metal.

You also get fabrication flexibility! At Loon Lake, for example, some Wolmanized Lumber parts were pressure-treated *before* lamination; some *after lamination.*

Millions of feet of Wolmanized Lumber are currently in use in all phases of American industry. Write for free booklet "Service Records," which gives factual information about these applications.

How WOLMANIZED Lumber was used on Loon Lake bridge:
100 foot arches; Struts and braces; Timber-concrete composite deck

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EDUCATION, RESEARCH

Rapid water tests prove value of bacteria filter

A nitrocellulose filter through which no bacteria—only viruses—can pass was announced last week as having been given preliminary tests at the U. S. Public Health Service Environmental Health Center, Cincinnati, Ohio. Hailed as a time-saver in bacterial analysis, this readily portable membrane filter is expected to prove of considerable value in water testing in rural areas where laboratory equipment is unavailable.

Tests in Cincinnati have shown the method of analysis accurate in identifying and counting water-borne bacteria in hours rather than days. Filter disks about 48 mm in diameter and 0.1 mm thick have regularly spaced vertical pores tapered toward their upper ends. Pores are sized so that filter speeds vary: from one to 100 minutes for passage of a quart of water at a pressure of one atmosphere.

Used disks with bacteria deposited on them are placed in a Petri dish against a culture medium which encourages growth of the organisms under study, while repressing growth of other organisms. Incubated, the bacteria seed colonies are visible to the naked eye. Structure of the filter prevents spreading of the colonies, causing them to grow into the pores, thus making counting easy.

Studies so far have investigated how to sterilize and operate the filter and how to develop suitable culture media. Comparisons of filter operation with coliform bacteria counts by other methods have been made; the filter has been used to isolate and identify the typhoid germ. The filter is said to be of value as a means of carrying bacterial samples from rural supplies to central laboratories for accurate diagnosis.

PHS Surgeon General Leonard A. Scheele predicts the new technique "may prove to have an importance in bacteriology comparable to Koch's use of solid culture media."

Natural science building

Some time this summer, work is to start on the construction of a $1,000,000 natural science building on the campus of the University of Louisville, Ky. It will be a 4-story building of reinforced concrete with red brick exterior. It will have 70,000 sq. ft. of floor space for laboratories, a library, lecture halls and classrooms.

Engineering students conduct municipal survey

The School of Engineering of Columbia University will make an intensive study this year of Winsted, Conn. The survey, under the direction of Prof. William W. Waite of the Department of Industrial Engineering, for the first time will be opened to graduate students, the staffs of other universities and colleges, and staff members from public education systems. In previous years, the survey was conducted solely by freshmen students in Columbia's School of Engineering.

The purpose of the student survey project, which was initiated in 1948 and has already studied seven Connecticut towns, is to enable student engineers "to see in concrete form the problems encountered in applying engineering principles in the everyday life of a typical American community, whether these principles affect the rendition of a utility service, the production of a manufactured article, or the operation of a government department."

Brief news of education and research

• **New head of ASEE division**—Prof. Edwin H. Gaylord, chairman of the department of civil engineering at Ohio University, Athens, Ohio, was named head of the Civil Engineering Division of the American Society for Engineering Education at the society's annual meeting. The new head of the division was incorrectly given as Edwin H. Arnold in the report of the annual meeting in our issue of July 12.

• **Experimental projects**—At present five experimental projects are active at the Texas Engineering Experiment Station, College Station, Tex. They are: Disinfection of rural water supplies, sewage purification by rock filters, durability of metal pipes exposed to sewage gases, oxidation of settled sewage by horizontal filters, and sedimentation of sewage.

• **Slippery walkways**—The elimination of the hazards imposed by slippery walkway surfaces—responsible each year for a large number of serious injuries and accidental deaths—is the principal objective of a research project at the National Bureau of Standards. To obtain basic quantitative data on some of the factors involved in the slipperiness of walkways, the bureau has devised an electronic stepmeter that measures the three components of force produced between the foot and the floor in normal walking. It is said that data thus provided on the mechanics of walking should materially aid in the development of a suitable instrument and method for measuring the slipperiness of walkway surfaces in factories and elsewhere.

Faculty notes

Milton G. Young has been named acting dean of the University of Delaware School of Engineering during the leave of absence of Dean David L. Arm, who will be with the E. I. du Pont de Nemours and Co. until April, 1952.

C. Ken Weidner has been appointed dean of the new school of engineering at the American University of Beirut, Lebanon. He has been representing the University of Chicago in charge of the construction of the Argonne Laboratories.

John A. Damm, assistant dean of Stevens Institute of Technology since 1946, has resigned to go with the General Electric Co. His successor is Nicholas J. Rose, assistant professor in the department of mathematics.

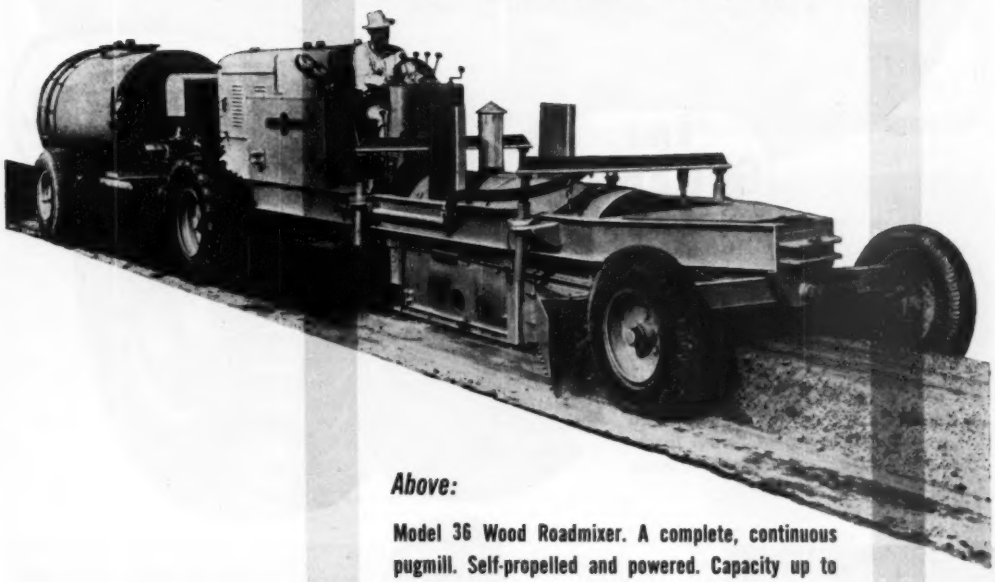
Recent promotions at Lehigh University are: Ferdinand P. Beer, associate professor of mechanics to full professor; Alvin C. Loewer, Jr., assistant professor of civil engineering, in charge of the concrete laboratory in Fritz Engineering Laboratory, to associate professor; and Murray B. McPherson, assistant professor of civil engineering, in charge of the hydraulics laboratory in Fritz Engineering Laboratory, to the rank of associate professor.

Prof. Henry Campbell has been appointed head of the civil engineering department of the University of Rhode Island's College of Engineering.

Effective Oct. 1, Cornelius Wandmacher, director of the evening session and associate professor of civil engineering at the Polytechnic Institute of Brooklyn, will become professor of civil engineering and head of that department in the University of Cincinnati College of Engineering. C. Albert Joerger is dean of the college. Prof. Wandmacher will replace Prof. Howard B. Luther, who is retiring after 29 years.

WOOD Roadmixer

The ONLY **single engine, one-man operated, one-pass** traveling roadbuilding plant which mixes in a **confined drum — off the subgrade,** and which can be used for the construction of **stabilized bases,** and as a **traveling asphalt plant!**



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Model 36 Wood Roadmixer. A complete, continuous pugmill. Self-propelled and powered. Capacity up to 150 tons per hour.

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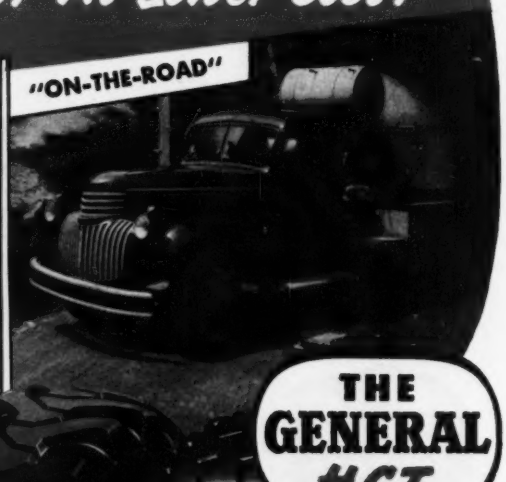

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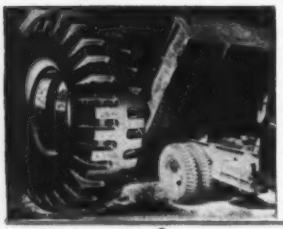
GENERAL D. T. L. with deep, sharp, angled cleats and sturdy, high shoulder lugs. Designed for maximum traction on soft surfaces—forward or backward.

GENERAL H. C. T. for trucks that go off-the-road to pick-up, deliver loads. Free-rolling tread and stronger body for more miles, more safety.



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For power wheels—sharp, self-cleaning tread for extra traction. For front wheels—easy steering, smooth riding ribs.

Specify **GENERAL TIRES ON YOUR NEW EQUIPMENT**

MEETINGS

The North Carolina Society of Engineers held its 33rd annual summer convention at Asheville, N. C., July 26-28, with around 200 engineers attending. Ross H. Reynolds of Winston-Salem, presided and speakers included: C. N. Burton of Asheville, E. L. Lynn of Pisgah Forest, Joseph A. Whitman of Raleigh, and DeParx Stimson of Winston-Salem.

Hamilton E. Hicks of the Corps of Engineers, Wilmington, N. C., was nominated for president. Carroll Mann of Greensboro, District 3, and Hal S. Crain of Durha, District 2, were nominated for first vice-president; and Henry M. von Oesen of Wilmington, District 1, and J. N. Pease of Charlotte, District 2, were nominated for second vice-president. Balloting will be by mail and the winners will be announced at the winter meeting in Durham next January.

Laurence L. Dresser, president, Dresser Engineering Co., Tulsa, Okla., has been elected president of the National Society of Professional Engineers, succeeding S. L. Stolte, of the St. Paul architectural firm of Bettenburg, Townsend & Stolte. Newly elected vice presidents are: Chester Lichtenberg, Fort Wayne, Ind.; J. F. Reynolds, Jacksonville, Fla.; T. C. Forrest, Jr., Dallas; and D. C. Griffen, Seattle, Wash.; R. B. Allen, College Park, Md., was reelected treasurer, and Paul H. Robbins, reelected executive director and secretary of the association.

Harold E. Deardorff, vice-president of Dayton Power & Light Co., has been elected president of the Engineers Club of Dayton, Ohio. Others elected: Charles W. Wright, vice-president; James P. Malmstrom, secretary; and Richard S. Gaugler, treasurer.

CALENDAR

N. J. Society of Professional Engineers, Manasquan River Golf Club, Brielle, N. J., Sept. 8.

New England Water Works Association, Hotel Statler, Boston, Mass., Sept. 10-12.

Minnesota section, American Water Works Association, fall meeting, Hotel Nocollet, Minneapolis, Sept. 12-14.

N. Y. section American Water Works Association, fall meeting, Whiteface Inn, Lake Placid, N. Y., Sept. 13-14.

Public Works Congress and Equipment Show, Meimorial Bldg., Detroit, Mich. Sept. 16-19.

Pennsylvania section, American Water Works Association, Bellevue-Stratford Hotel, Philadelphia, Pa., Sept. 19-21.

S. D. Water and Sewage Works Conference, Chas. Gurney Hotel, Yankton, Sept. 19-21.

Kentucky-Tennessee section, American Water Works Association, fall meeting, Louisville Kentucky Hotel, Louisville, Ky., Sept. 17-19.

Michigan section, American Water Works Association, fall meeting, Whitcomb Hotel, St. Joseph, Sept. 19-21.

Rocky Mountain section, American Water Works Association, fall meeting, Hotel Cosmopolitan, Denver, Colo., Sept. 24-25.

9th International Road Congress, Permanent International Association of Road Congresses, Lisbon, Portugal, Sept. 24-29.

Alabama-Mississippi section, American Water Works Association, Buena Vista Hotel, Biloxi, Miss., Sept. 24-26.

Wisconsin section, American Water Works Association, fall meeting, Pfister Hotel, Milwaukee, Sept. 25-27.

Ohio section, American Water Works Association, fall meeting, Commodore Perry Hotel, Toledo, Ohio, Sept. 27-28.

Missouri section, American Water Works Association, Hotel Robidoux, St. Joseph, Mo., Sept. 30-Oct. 2.

West Va. section AWWA, Daniel Boone Hotel, Charleston, W. Va., Oct. 4-5.

First Pan American convention, International Road Federation, Municipal Palace, Lima, Peru, Oct. 5-6.

Federation of Sewage & Industrial Waste Association, Municipal Auditorium, St. Paul, Minn., Oct. 8-11.

Concrete Reinforcing Steel Institute, semi-annual meeting, Grove Park Inn, Asheville, N. C., Oct. 8-13.

Structural Engineers Association of California, The Akwahnee, Yosemite National Park, Calif., Oct. 11-13.

Street Maintenance and Sanitation Officials, Ohio, Hotel Pick-Ohio, Youngstown, O., Oct. 18-19.

Engineers Council for Professional Development, Statler Hotel, Boston, Mass., Oct. 19-20.

National Council of State Boards of Engineering Examiners, Statler Hotel, Boston, Mass., Oct. 21-24.

American Bridge, Tunnel and Turnpike Association, St. Francis Hotel, San Francisco, Oct. 21-24.

American Society of Civil Engineers, annual meeting, Statler Hotel, New York City, Oct. 22-25.

American Association of State Highway Officials, Fontinello Hotel, Omaha, Neb., Oct. 23-26.

National Standardization Conference, Waldorf-Astoria Hotel, N. Y. City, Oct. 22-24.

American Institute of Steel Construction, Inc., annual meeting, The Greenbrier, White Sulphur Springs, West Va., Oct. 22-25.

California section, American Water Works Association, Fairmount Hotel, San Francisco, Oct. 23-26.

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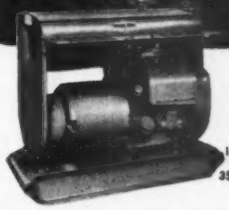

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Le Roi gives you more for your MONEY!

more air power
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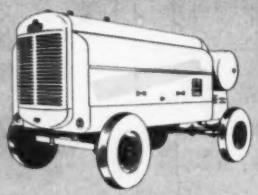
To save time used in dismantling for consecutive jumps ahead and then reconnecting, a Brewster master mechanic took the wheels off four Le Roi Compressors and mounted them in tandem on a low-boy trailer. As the driving rigs moved ahead, the trailer followed right along.

Dependable, daily, 24-hr.

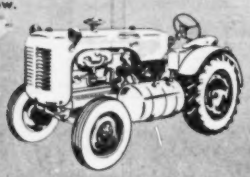
Why LeRoi Airmasters produce more air for less money: 10 to 30% lower piston speed for less wear, longer life, lower fuel consumption . . . a heavy-duty engine designed especially for compressor service, not just an automotive unit slowed down — that's why Le Roi Airmasters stay on the job longer, produce more air for less. Sizes from 60 to 600 cfm.



Why LeRoi-CLEVELAND Wagon Drills cut deep-hole costs: — 4-inch bore, powerful force of blow, strong rotation, and thorough hole-cleaning action. Higher drilling speed with big bits. You can drill at any angle — put your holes where you want them for better breakage, lower costs. For shallow holes the new lightweight DR34 unit is your best bet.

Team-up with Le Roi for Lower Costs

Why multi-purpose Tractair saves you money: Tractair is a tractor-105 compressor unit that can be equipped with a wide variety of attachments. This single unit can do the work of specialized expensive equipment — loading, lifting, backfilling, snow-plowing, etc. — as well as breaking, drilling, digging, and tamping. Keeps your initial investment down, your job costs low.



Why LeRoi-CLEVELAND Sinkers drill more feet per shift: Strong rotation, and powerful blow from snappy valve action. Drill more inches per minute. Easy to hold, kickback is reduced. Operators are less tired, drill more feet per shift. Sizes 17 to 82 lbs., including the popular H10 and H111.

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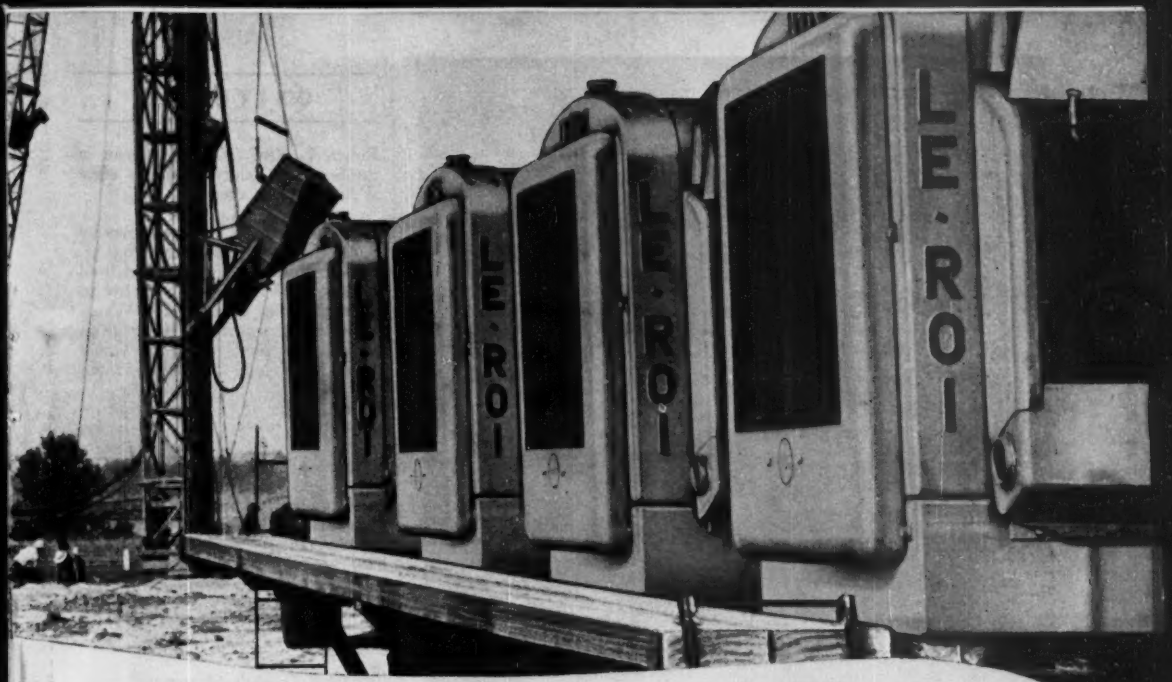

operation on N.J. Turnpike

George M. Brewster & Son, Inc., uses Le Roi 600 cfm Compressors to supply air for sand-drain driving rigs

They wanted speed in driving 3,825,000 lin. ft. of vertical sand drains on the New Jersey Turnpike. And George M. Brewster & Son, Inc., by far the leading contractor on New Jersey Turnpike sand-drain operations, used 12 Le Roi's to help them get it. These compressors furnished a dependable supply of air 24 hours a day to power the pile drivers and to apply the pressure needed to force sand into the marshy ground.

Le Roi Compressors have paid off with money-saving performance on tough jobs all over the country — paid off with greater dependability, lower fuel and oil costs, and less maintenance.

To get the most out of your Le Roi Compressors, team them with Le Roi-CLEVELAND Rock Drills or Paving Breakers. Then, you've got a working combination that holds job figures down to the lowest cost per foot of hole.

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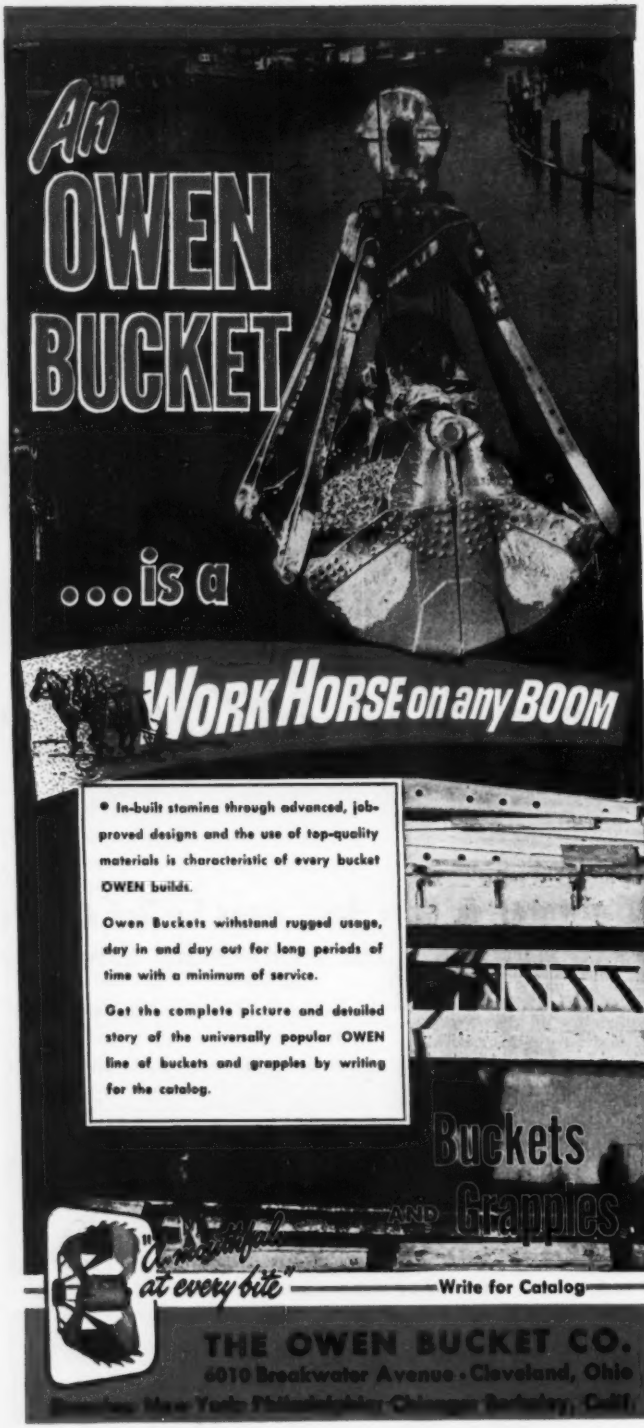
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OBITUARY

Robert L. King, 67, a draftsman in the Summit County engineer's office at Akron, Ohio, died Aug. 5.

Lee Monohon, 93, civil engineer of Renton, Wash., died there Aug. 5. Born in Roseburg, Ore., he had lived in Renton 67 years. He was active in promoting the Cedar River Waterways District, and was a charter member and past president of the Washington State Good Roads Association.

Blaine Potter, 60, former superintendent of public works in Jamestown, N. Y., and for the last 26 years an independent engineer and surveyor, died Aug. 4. In 1910 he joined the Department of Public Works as a surveyor and on May 10, 1920 became superintendent of the department. He became general foreman of the department in 1923 and served until 1925 when he started an independent surveying business. In World War I, he was with the U. S. Army Engineers.

Edward P. Harman, 68, a retired chief engineer for the Philadelphia Bureau of Water, died Aug. 5 at Philadelphia. He was an employe of the bureau for 31 years and was in charge of the Lardner's Point pumping station before he retired in 1937.

W. G. DeBerry, Jr., 52, of Southern Pines, N. C., who recently returned from North Africa where he had been employed for several months in a supervisory capacity on government projects by the Nello Teer Construction Co. of Durham, N. C., died Aug. 8 while on a vacation trip at Fredericksburg, Va.

Karl F. Kapff, 52, Bowling Green, Ohio, assistant division engineer in charge of construction for the Ohio Highway Department, died in Toledo July 31.

Joseph Matthew Mara, 55, a federal government civil engineer who served in the Hawaiian Islands on hospital construction jobs six years, died Aug. 6 in Albany, N. Y.

Joseph B. Barry, a New York State highway engineer, died July 19 in Syracuse.

Raymond H. Findley, 67, for 24 years chief engineer of the Omaha and Council Bluffs Street Railway Co., died at Omaha July 28. He was a 1908 graduate of the University of Nebraska and a year later joined the

(*Continued on page 60*)

CUT OUT FOR YOUR JOB

in the long-wearing pattern so popular today

One of 6 new International LF-190 six-wheelers with 6½-yard mixer bodies recently added to the fleet of the Harris Concrete Company.

When you buy a suit for long wear, you pick something like sharkskin with hard-wearing quality, that won't pop at the elbows or balloon at the knees.

The truck you see here is a popular choice today for the same basic reason: it's got a special kind of toughness built in. It's *heavy-duty* engineered with the extra stamina that has kept Internationals first in heavy-duty truck sales for the last 19 straight years. And it's as custom-tailored for your job as a truck can be.

If we can't fit you, nobody can

International offers complete specialization in the most complete line of trucks in America. When you get into the heavy-duty six-wheeler class, you get this expert specialization at its very best.

Here's a sample of the right-on-the-job features these great new trucks give you:

New bogie assemblies integrated to chassis for maximum flexibility and increased efficiency on and off the highway.

New dual-drive hypoid-gear axles that give you greater load-carrying capacity along with greater traction for tough going in deep sand and mud.

New inter-axle differential on the forward tandem axle in place of the old type power divider.

New valve-in-head truck engines—the Super Blue Diamond and Super Red Diamond—*proved* for balanced power and economy.

Plus . . . the great new **COMFO-VISION CAB**, "roomiest on the road"!

See us for a truck that will wear better

This combination of specialized features and traditional stamina is a tough one to beat today, when investment in durability is more important than ever. See your International Truck Dealer or Branch.

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Every model heavy-duty engineered for the long haul

Pick this Lightweight for Heavyweight drilling!
Like all Acker Drills, this lightweight husky was designed and built to operate under the most rugged conditions.
If you are looking for a quality drill that will give you years of trouble-free operation—you want the Acker Teredo.
Over 30 years of experience in the design and manufacture of drilling equipment is the big reason why Acker Drills stand-up year after year, job after job. Write for Bulletin 33. ENR
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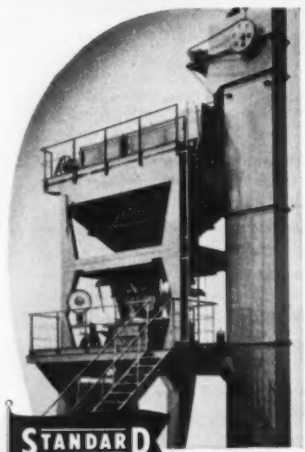

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Obituary . . .

street railway company as a civil engineer. As chief engineer he had charge of all construction projects.

William F. Luby, 57, former commissioner of public works of Troy, N. Y., died Aug. 3. He had retired Feb. 1 as commissioner and water bureau engineer. Prior to that he had served Troy continuously since 1920 in engineering and administrative capacities. He was graduated from Rensselaer Polytechnic Institute in 1920.

Herbert B. Ayres, 54, of Tarrytown, N. Y., an engineer with the Army Corps of Engineers in New York City, died there Aug. 6. He had attended Syracuse University and was a member of the Tarrytown Planning Board.

Walter W. Stegman, 58, former engineer for Wheeling, W. Va., and Ohio County, died July 30 at Wheeling. A graduate of Carnegie Institute of Technology, Mr. Stegman headed the engineering firm of Stegman and Schellbase, Inc.

J. Arthur Balls, 79, active in road building for many years in South America, Japan, and the United States, died at Thorold, Ont., July 19. He had been associated with Warren Brothers Co., Cambridge, Mass., and with Bituminous Contracting Co., Cape May Courthouse, N. J.

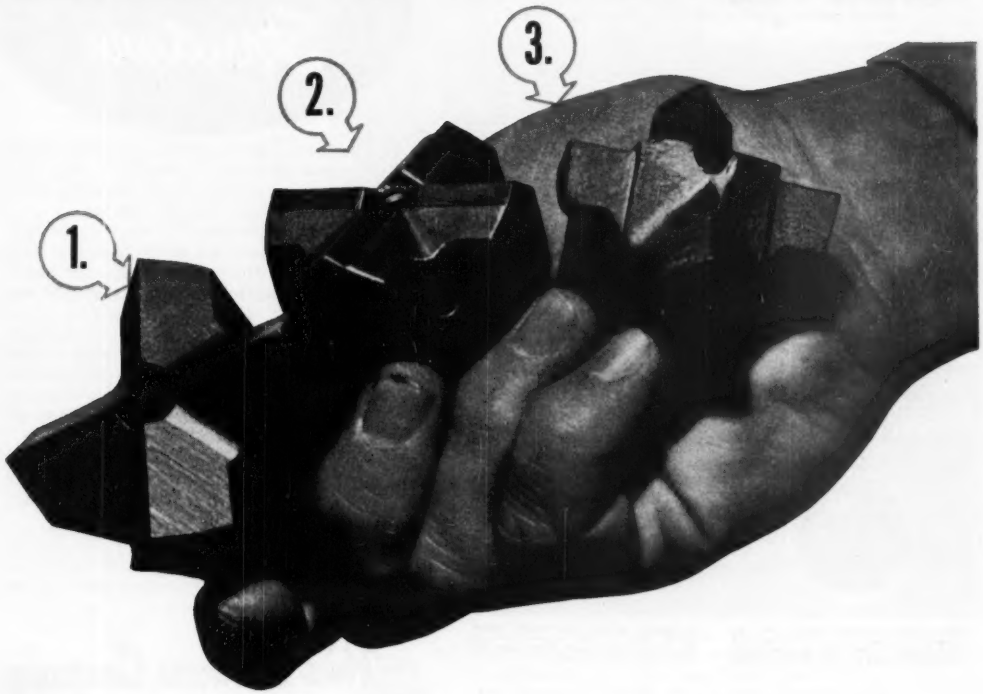
Randolph R. Page, 66, an engineer in the estimates branch of the Public Building Service of the General Services Administration, died recently. A graduate of the Virginia Polytechnic Institute, Mr. Page worked in South Carolina for many years and during the second world war he was located at Norfolk, Va., and at a naval base which he built at Brunswick, Ga.

Joseph N. Gordon, 75, a general contractor and a builder of highways, tunnels and dams, died at Los Angeles, Calif., Aug. 3. He was connected with the work on Shasta Dam, California, and built several of the tunnels on the Pennsylvania Turnpike.

Robert Joe Taylor, 45, of Siler City, N. C., for the past 20 years superintendent of road construction for Grannis and Sloan Company, Inc., of Fayetteville, N. C., was killed in an automobile accident near Apex, N. C., Aug. 11 while on his way to a road construction job near Raleigh.

(*Continued on page 63*)

Only the TIMKEN Company brings you all 3 rock bit types and a complete Rock Bit Engineering Service!



BE *sure* you're using the type bit that's best for your job by getting the unbiased recommendation of the *one* company who makes *all 3* rock bit types—the Timken Company. With all 3 bits to draw upon, plus 18 years' experience in solving rock bit problems, our Rock Bit Engineers can give you the bit performance you're looking for.

For example, if you're looking for lowest bit cost per foot of hole, and control and reconditioning of bits are correct, your best bet may be the MULTI-USE BIT (1, above). It gives lowest cost per foot of hole when full increments of steel can be drilled. If your ground is hard, abrasive, or if time is at a premium, you may need CARBIDE INSERT BITS (2, above). Or if reconditioning is impractical or undesirable on your job, perhaps you should use ONE-USE "SPIRALOCK" BITS (3, above). Let the Timken Rock Bit Engineering Service help you decide.

FOR FREE BOOKLET *with full information on all 3 rock bit types or for help with your particular problem, write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".*

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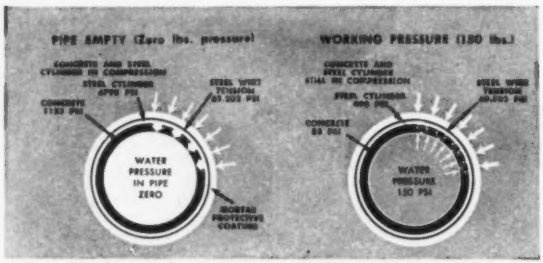
HOW *Prestressing* MAKES CONCRETE and STEEL PRESSURE PIPE an...

Elastic Structure

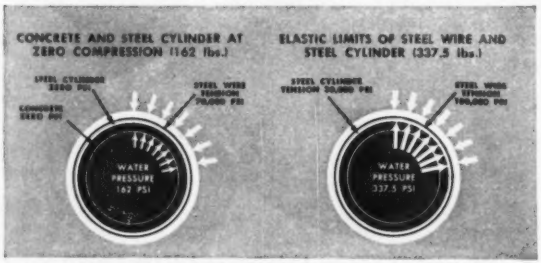
Structural Changes That Occur When Pressure Is Increased In A Typical Class 150 30" Pipe

(Similar conditions exist in pipe 16" in diameter and larger)


PIPE EMPTY (Zero lbs. pressure)
WATER PRESSURE IN PIPE ZERO
MORTAR PROTECTIVE COATING
WORKING PRESSURE (150 lbs.)
WATER PRESSURE 150 PSI

At zero internal pressure, the concrete core and steel cylinder are compressed by the steel wire wrapping.

At working pressure of 150 psi, the compression in both the steel cylinder and concrete core is partially relieved by the internal pressure of the water, but still remain in compression.


CONCRETE AND STEEL CYLINDER AT ZERO COMPRESSION (162 lbs.)
WATER PRESSURE 162 PSI
ELASTIC LIMITS OF STEEL WIRE AND STEEL CYLINDER (337.5 lbs.)
WATER PRESSURE 337.5 PSI

With internal pressure at 162 psi, the compressive stress in the concrete core and steel cylinder is zero. They go into tension only after pressure increases past this point.

As internal pressure is increased further, tensile stress of steel cylinder and wire increase uniformly until they reach their elastic limits at 337.5 psi.

Prestressed Concrete Steel-Cylinder Pipe consists of a structural core of concrete, a water-tight steel cylinder, a wrapping of steel wire, and a protective coating of cement mortar.

The pipe is prestressed by wrapping the high-tensile wire around the steel cylinder and cured concrete core. The wire is wound under tension and compresses both the cylinder and the concrete core.

As water pressure inside the pipe increases, this compression decreases. The steel cylinder and concrete core go into tension only after the compression is relieved. *At normal operating pressure,* the concrete core and steel cylinder are *still under compression.*

Because of this design, the concrete core, the steel cylinder and the wire wrapping continue to act as *an elastic structure,* in spite of their different characteristics.

Price Brothers engineers know pipe line design and construction problems. We will be glad to estimate pipe and installation costs, without obligation.

Price Brothers Company

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Installing Price Brothers Prestressed Pipe on the 80-mile Saginaw-Midland project, one of America's longest high-pressure water supply pipe lines. Pull shovel digs trench and lays pipe.

Send for these fact-packed booklets on Price Brothers Prestressed Concrete Steel-Cylinder Pipe.

Please send me booklets on Prestressed Pipe.

- ☐ Manufacturing and Prestressing.
- ☐ Tapping under Pressure
- ☐ AWWA Specification No. 7B.2-T

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Obituary . . .

Oscar Karl Hellbeck, 56, chief irrigation engineer for the Bureau of Reclamation on the Missouri Basin Project, died Aug. 12 at Durham, N. C., where he had been undergoing treatment. A native of Denver, Colo., he had been living and working at Billings, Mont., recently.

John T. Miller, 88, contractor of North East, Pa. for many years, died Aug. 10.

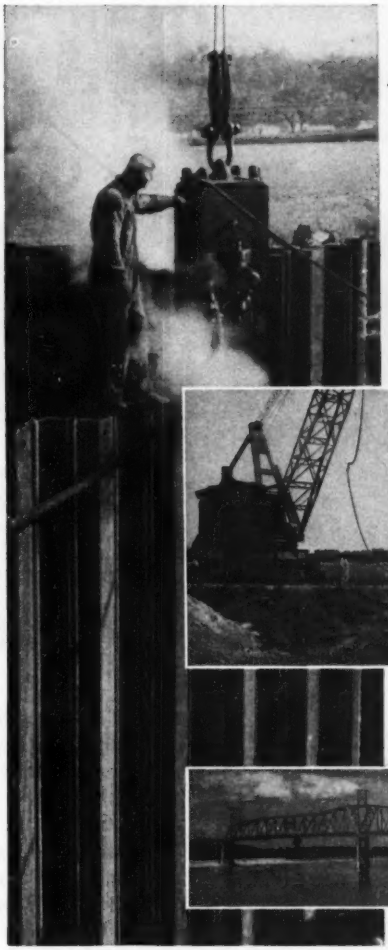
James Bunnell Broach, 53, veteran bridge engineer with the North Carolina Highway Department, died Aug. 12, the day after completing 30 years of service with the department. He obtained his civil engineering degree from the University of North Carolina in 1921 and joined the highway department as a draftsman in the bridge department. He became senior bridge construction engineer for the entire eastern part of the state, which position he held at the time of his death.

Robert S. Pollard, 54, Seneca County assistant engineer of the New York State Department of Public Works, Division of Highways, died Aug. 11.

Walter J. Ryan, 69, civil engineer of Tacoma, Wash., died there Aug. 12. He studied at Purdue, Cornell and Oberlin universities, and moved to Tacoma in 1906. He started with the Northern Pacific Railway, and joined the Weyerhaeuser Timber Co. in 1915 and became chief forestry engineer of the logging division before retiring after 34 years. As a consulting civil engineer, Ryan had traveled extensively to study and advise on forestry and engineering problems. He was a director of the American Society of Civil Engineers.

Frank Dullea, 66, for the last six years an engineer in Rochester, N. Y., for the New York State Department of Public Works, died Aug. 12. He was graduated from Clarkson Institute of Technology as a civil engineer in 1907. For eight years he was city engineer of Auburn. He had worked for N. Y. State for 36 years.

1st Lt. Thos. A. Baldwin, Jr., 25, a civil engineer, was killed in action in Korea recently. He was a 1946 Cornell graduate and a veteran of the second world war, until his recall to active duty by the U. S. Marine Corps in November, 1950. He was superintendent for the Raymond Concrete Pile Co. for four years. A combat engineer, he was a member of the 1st Engineers Battalion of the First Marine Division.



VERSATILE LINE OF
McKiernan-Terry
Hammers

HELPS BUILD A BRIDGE
FOR CORPS OF ENGINEERS
OVER DRY LAND

A McKiernan-Terry Hammer driving piles for the Liberty Bend Bridge which was built over dry land near Kansas City, Mo., before redirection of the mighty Missouri River. Massman Construction Co. and the Kansas City Bridge Co. were the joint contractors.

Completed bridge over relocated river.

GRAB BUCKETS

COAL TOWERS

TRANSFER BRIDGES

HONING TO 42" I.D.

HERE was a case where the contractors wanted pile-hammer versatility. So, from the large McKiernan-Terry line, they selected three McKiernan-Terry Double-Acting Hammers—a 10-B-3, a 9-B type and a 7—to drive steel piles for cofferdams.

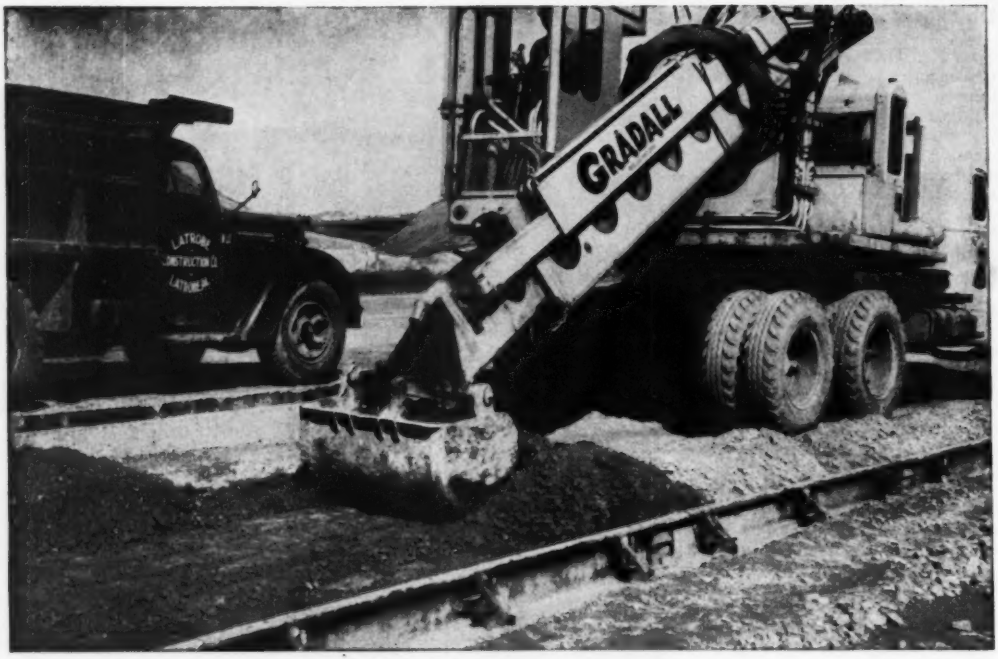
The 10-B-3 hammer, for example, drove H-piles to a bearing of 60 tons, in some places down to refusal in hard rock. Part of the bearing pile driving was done with water in the cofferdam, and in this case the McKiernan-Terry Hammer was submerged from 18 to 23 feet.

You, too, can get all the pile-driving versatility you need with the wide range McKiernan-Terry line which includes 16 sizes of single-acting and double-acting hammers and 2 sizes of double-acting extractors. Write for bulletin.

McKIERNAN TERRY

MK-302

McKIERNAN-TERRY CORPORATION MANUFACTURING ENGINEERS 13 PARK ROW, NEW YORK 38, N. Y.
Plants: Harrison, N. J. and Dover, N. J.



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THAT'S WHAT A GRADALL OPERATOR for the Latrobe Construction Company of Latrobe, Pa. has to say about this amazing multi-purpose construction machine.

On this particular job—road construction at the Irwin Interchange on the Pennsylvania Turnpike—the Gradall was used for grading banks, digging ditches, rooting up concrete and sub-grading the highway. Best of all, it eliminated the hand work by sub-grading right up to the form.

GRADALL DISTRIBUTORS
IN OVER 60 PRINCIPAL CITIES
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The Latrobe Construction Company, which owns and operates four Gradalls, has discovered that the Gradall does things one machine never did before . . . that it can do precision work out of the reach of ordinary construction machines . . . that it eliminates much hand labor.

But you'll want to see for yourself. If, by chance, you don't know where you can quickly see a Gradall in operation, call your nearest Gradall Distributor. He'll be glad to give you a demonstration . . . to show you how Gradall's versatility, precision, and speed can improve your profit picture.

Gradall®
DIVISION OF WARNER & SWASEY Cleveland

GRADALL—THE MULTI-PURPOSE CONSTRUCTION MACHINE

FOREIGN

Tunnelers blast plug in lake bottom to make intake for Scottish hydro job

Plenty of precaution made a dangerous-looking hard-rock tunneling feat into a safe one recently when the intake for a new hydro plant was holed through.

The tunnel feeds the hydro plant with water from Loch Fannich, in Northern Scotland. Intake location is in the lake's bottom, 80 ft beneath the surface.

Because the rock is relatively free of seams it was decided to tunnel out under the intake point, excavate a sump to receive a substantial volume of muck. Then prepare the blast that would remove a 15-ft thick lake-bottom plug and complete the intake. Muck from this blast would drop into the sump out of the way of hydro water flow.

Before the blast, the lake bottom above the plug was scraped to remove all debris that might be carried into the tunnel intake.

Cross-section of the scheme is sketched here. The sketch also shows two types of precautions that were taken. First, to minimize surge of inrushing water at plug-shooting time, constructors flooded the tunnel and gate shaft to an elevation 12 ft below that of the lake. (This differential left enough unbalance to assure forcing of plug muck inward to the sump).

Then, to oppose an estimated 120 tons per square foot of pressure that would act on the emergency gate when the blast was fired if it was used to close the tunnel, two thick concrete bulkheads were built across the tunnel. Finally, a temporary steel bulkhead was installed at the base of the screen shaft.

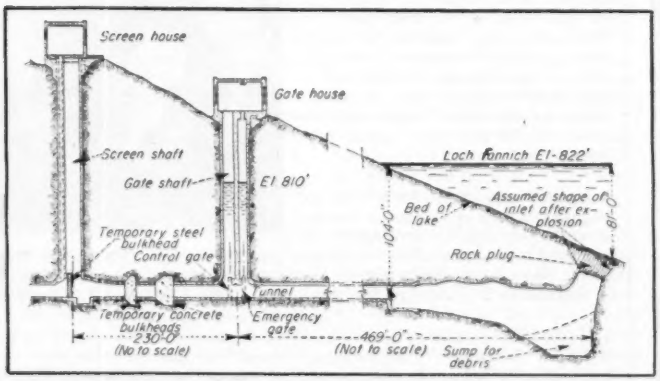
More precautions were taken in driving the 11-ft dia tunnel. Several diamond-drill holes were pushed 70 ft ahead of the face as work progressed. These revealed three wet seams, which were grouted and they confirmed the careful survey that had been made of the lake-bottom. Later when excavation was proceeding upward toward the plug, more exploratory drilling was done.

Upward mining was accomplished from pontoons that floated in the partly flooded sump. The sump was cut 45 ft below invert grade and 17 ft wide, to provide space for twice the plug's estimated rock volume.

For plug removal 102 holes were drilled, to within 2 ft of the lake-bottom, for a 5-stage blast. As nearly as can be ascertained, the blast achieved the intended hole outlines.

After the blast, the main gate valve was closed and water was removed between that point and the biggest bulkhead, which showed no sign of failure. It was removed as were the other temporary bulkheads, and the intake tunnel was ready to deliver water to the hydro plant.

The above information comes from The Engineer, of London, June 15, 1951, p. 780. Sir Alexander Gibb and Partners are consulting civil engineers on the Loch Fannich work. Tunnel contractor is Balfour, Beatty and Co. Ltd.



A ROCK PLUG, over 80 ft below the surface of Lake Fannich, was blasted to provide an intake for a new hydro-electric project in Scotland (from The Engineer, London).

• **New Ottawa bridge**—Ottawa, Ont., will soon have a new bridge across the Ottawa River, at the west end of the city, it is reported. Part of the Greber master plan for the development of the city is a new highway crossing of the river between Britannia, on the Ontario side of the river, and Deschenes in the province of Quebec. The Ottawa River there is about a quarter of a mile wide, its flow being swift over an exposed rock bar. An abandoned surface railway right-of-way on the Quebec side of the river has just been given to the Federal District Commission by the Hull Electric Railway Co. and this paves the way for a new approach road to the bridge site. Originally scheduled to be built in the late fifties, the bridge may now be completed by 1955. It would be the fourth highway crossing of the Ottawa River in that area. Additional data on Ottawa improvements was published in ENR Mar. 8 p. 54.

Foreign briefs

• **Nicaragua highways**—The International Bank for Reconstruction and Development has loaned $3,500,000 to Nicaragua for the purchase of equipment and machinery for highway construction. The most important project is a road to be built between Managua, the capital, and Leon, the country's second largest city. At present these cities are not connected by any road.

• **Aswan Dam bids**—Four groups of British, French, German and Egyptian companies have joined to make their tenders for the completion of the hydro-electric project of the Aswan Dam on the Nile. The Egyptian Ministry of Public Works says that the absence of American bids is due to the accelerated defense program of the United States, and to the fact that American firms insisted on payment in dollars, something which Egypt was not able to guarantee.

• **To direct Ethiopian roads**—Emperor Haile Selassie has appointed John L. Humbard of Knoxville, Tenn., to be director of that African country's newly-established highway authority. Other Americans holding top position in the highway program are Paul C. Thompson, Bloomington, Neb., chief engineer; W. Park Wilson, Knoxville, Tenn., administrative officer and William T. Brown, Washington, D.C., construction engineer. Local labor, including many Italians who participated in the construction of Mussolini's original ambitious highway network in Ethiopia, will be used on the roads.

(Continued on page 66)

Wood Piles Above Water Table are Permanent

When Pressure-Creosoted and Correctly Used

Major building codes recognize pressure-creosoted piles, cut off above water table, as permanent. Such foundations are today demonstrating their efficiency by bearing the tremendous loads of towering multi-story buildings. Write for Booklet WO5-100 which tells the story of wood piles.

KOPPERS

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GROUTER AND PEA SHOOTER COMBINED IN ONE UNIT!

MAYO

FREE Bulletin Describes Money-saving Combination

Mayo Pneumatic Grouter lowers equipment costs because it's readily converted into pea shooter . . . does "double duty." Places low pressure grout in tunnels, mines, railroad subgrades, sunken pavements . . . injects chemical emulsions for soil stabilization.

MAYO
TUNNEL & MINE EQUIPMENT
Robert S. Mayo
Civil Engineer
LANCASTER, PA.

Foreign . . .

New Point 4 Agreements

• Iran and Syria—Two agreements were signed recently with the Near East Foundation for the expansion of rural improvement programs in Iran and Syria. The Near East Foundation has shown that remarkable results can be obtained through the rural approach in such countries where most of the people live and work in small villages.

• Haiti—There is to be an extended program of technical cooperation with Haiti where the United States has been giving technical and financial aid for the last 35 years. Technicians of the U. S. government have served as advisors in health and sanitation, irrigation, reclamation and other fields, and this help is to be broadened.

• Greece—Support for Athens College has been announced by the Department of State. There will be fellowships for about 200 Greek students in the next two years. New buildings are planned. Former Prime Minister Themistocles Sophoulis had this to say about the school: "Institutions such as Athens College complete and strengthen the work of American aid to the Greek people. The cooperation of Greeks and Americans in defending our country, and in rebuilding its ruins would be incomplete without cooperation in the task of creating a new generation capable of shouldering the responsibility for the future of Greece."

• Mexico—An agreement between the Mexican and U. S. governments establishes principles to be applied to all of the projects for technical assistance. The two countries are already engaged in six technical cooperation projects. One of the first started in 1942 when the Institute of Inter-American Affairs cooperated with the Mexican government in setting up a joint health and sanitation "servicio," which has developed a comprehensive public health and water supply program.

• Egypt—Frederick H. Sacksteder, an engineer of long experience in foreign development work, has been appointed technical cooperation officer in charge of the Point 4 program in Egypt. He is attached to the American Embassy.

• Lebanon—A mission of ten specialists from the Bureau of Reclamation has arrived in Beirut. Experts in hydroelectric power, irrigation and reclamation, they are cooperating with the Lebanese government in surveying the 125-mi. long valley of the Litani River for future development.

Let contract for paper mill at Hadera, Israel

A contract has been signed by the American Israeli Paper Mills, Ltd., and Merritt-Chapman & Scott Overseas, Inc., under which the latter is to design a $3,500,000 paper mill and supervise its construction and equipment for operation on a 20-acre site at Hadera, halfway between Haifa and Tel-Aviv.

Plans for the mill, scheduled to be placed in construction this fall and to be in operation by 1953, were jointly outlined in New York by Robert Szold, chairman of the Palestine Economic Corp. and Joseph M. Mazer, treasurer of the Hudson Pulp and Paper Co. and chairman of the American Israeli Paper Mills, Ltd.

The daily production of the plant will be geared for either 48 tons of semi-fine writing paper, 48 tons of Kraft multi-wall bag paper, or 35 tons of printing and tablet paper. All sulphite, Kraft and ground wood pulp will be imported, most of it from Scandinavian countries. Raw material and finished product will be trucked the 30 miles to and from Hadera and Haifa.

During construction Israeli personnel will be trained for operation of the mill, which not only will be the first in Israel, but the first of its kind in the Middle East to produce finished paper.

Haifa is a seaport situated at the foot of Mt. Carmel, nine miles southwest of Acre.

DISCUSS PAN AMERICAN ROAD CONGRESS—Following President Truman's address at Detroit's 250th anniversary celebration, the President and Gov. G. Mennen Williams of Michigan discussed with Eduardo Dibas, right, mayor of Lima, Peru, the coming Fifth Pan American Highway Congress to be held in Lima, Oct. 8-14.

MUNICIPAL

BETTER LIGHT REDUCES ACCIDENTS—Aurora Ave. in Seattle, Wash., after the installation of a new mercury vapor lighting system which reduced night-time traffic accidents. Launching a $4,000,000 installation of mercury vapor street lights, the city reported that on 6.83 miles of streets the number of daytime accidents increased from 496 during the 16 months before installation of the new lights to 679 during the 16 months after, while the number of injuries increased from 43 to 53. Night-time accidents increased also, because of greatly-increased traffic, from 288 to 320, but this was far less than the increase in daytime accidents. Night-time injuries actually declined, from 49 to 48. Before the lights, percentage of night-time accidents to the total number of accidents was 36.8; after, 32. Percentage of night-time injuries decreased from 54.5 to 47.5

Parking and traffic items from here and there

• **Off street parking**—The Board of Works of Fort Wayne, Inc., has called for plans and specifications for off-street parking facilities. The city engineer's office will draw all plans and specifications except those for a two-level garage, for which the board plans to hire private architects and engineers.

• **In downtown Indianapolis**—The Off-Street Parking Commission is considering several sites for garages and parking lots in the mile-square downtown area. The commission had earlier approved use of the Tomlinson Hall City Market site for construction of a civic auditorium and new market house in connection with a large public garage.

• **Transit subsidy proposed**—Balked in his plans to relieve traffic congestion in the downtown area of Seattle, Wash., by one-way streets, Mayor William F. Devin has asked the city council to refer the matter to a general election and to consider subsidizing the Seattle Transit System. The council, put under pressure by business groups, has voted against the one-way street plan, although city engineers have declared it to be the only practical solution. The mayor believes that subsidizing the transit system might reduce traffic congestion, with lower fares and better service designed to attract more riders and take automobiles off the streets. This idea drew unfavorable response from the transit system and civic leaders, but the one-way street plan may go to the voters next March, with a good chance for approval.

• **To pledge meter receipts**—Not satisfied that a 4-block, waterfront parking area would turn out to be self-liquidating, Jacksonville, Fla., turned to the state legislature and got authority to pledge its on-street parking meter collections as additional security for off-street parking facilities. The city has received from Parsons, Brinckerhoff, Hall and MacDonald a preliminary report on a proposed waterfront lot for 1,893 car stalls. It would be created by bulkheading and filling along the St. Johns River, and would cost $2,260,000, which would be raised by revenue certificates. Average annual net revenues over a 29-year period were estimated at $209,000. The city also has obtained authority to issue up to $6,500,000 of revenue certificates for off-street parking, including $3,500,000 to be used exclusively for the waterfront project.

• **Delaware parking authorities**—Gov. Elbert N. Carvel of Delaware has signed the bill, passed by the 1951 legislature, creating parking authorities for communities of the state, giving them the power to: Acquire by purchase or condemnation the necessary property for off-street parking purposes; to construct and control off-street parking facilities; and to finance

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Municipal . . .

the acquisition of such properties and the construction of necessary facilities through revenue bonds and special tax assessments in benefited districts.

• **Boston harbor bridge**—The Massachusetts House of Representatives has approved an investigation of the feasibility of building a high-level bridge across Boston Harbor between the downtown business district and East Boston. The proposed survey committee would also consider a bridge to eliminate traffic congestion at the Middlesex Street crossing in Lowell.

• **Parking deck building**—The Ohio Supreme Court decision that cities can sell bonds to finance off-street parking facilities has revived plans in Akron for a parking deck building. Officials are interested in the type of facility designed by Laurence G. Farrant, New Orleans, La., for that city, which is an open-deck parking building. Akron officials will also now go ahead with plans for developing the Cherry St. parking lot, for which land is already owned. In Dayton, the city has land for an off-street parking project near E. Second St. and Patterson Blvd., and plans to proceed with it.

• **Springfield, Mass., has plans**—Construction of two off-street parking garages in the central business section is recommended by Robert A. Mitchell, consultant to the Citizens Committee for Off-Street Parking. The privately-financed garages at a cost of $1,700,000, would have capacity for 881 cars.

• **City parking authority**—Wilmington, N. C., has set up a 5-member city parking authority to acquire sites for parking lots or structures. The body has authority to condemn property needed and to issue its own revenue bonds to finance construction.

• **Parking ramp–bomb shelter**—A proposal to construct a combined underground bomb shelter and parking ramp beneath Niagara Square in downtown Buffalo, N. Y., has been referred by the Common Council's finance committee to the Mayor's off-street parking committee, the commissioner of public works and the County Civil Defense offices. The proposal was advanced by P. L. Cimini, Buffalo architect, who said the estimated cost of such a project could be paid off in 20 years from income from operating the underground garage. In the meantime, the capital expenditures comparking sites and a fifth in the Broadmittee has endorsed four downtown way-Fillmore section.

Investigation is started on Hyperion sewage plant

Los Angeles' Mayor Fletcher Bowron has launched an investigation of the construction and operation of the city's new $41,000,000 sewage treatment plant at Hyperion to determine if complaints reaching his office have any factual basis.

Bowron explained that he is not charging nor intimating that any criminal irregularities in contracts or specifications are involved but that the investigation is his only method of determining what actually has occurred in the construction of the plant, that is not yet in full operation.

The Hyperion plant was constructed under contracts let by the Board of Public Works, and City Engineer Lloyd Aldrich directed the contractors in their work. Reports cite changes in specifications after contracts were let as one phase of the job certain to be thoroughly probed.

Aldrich was the leading candidate for Bowron's job in the last city election.

"Bids for contracts are necessarily closely related to written specifications," the mayor said. "In one contract, however, I am informed, more than 400 changes were made."

The mayor said complaints reaching him charge that city employees are performing work for which contractors are being paid; that in some cases contractors have not complied with specifications and other provisions of contracts; that there has been an unreasonable delay in completion of some portions of the work; that equipment delivered and installed is faulty, and similar matters.

Original cost estimate for the Hyperion plant was $18,000,000, which was advanced finally to the $41,000,000 figure, with the plant not in full operation at this time.

Both Aldrich and members of the Board of Public Works announced they welcome the inquiry. Jack Adams, new board president, said that members welcome the chance to bring out the full story of the plant and that it will spike charges of irregularities.

United municipal effort gets results for Tucson, Ariz.

Stressing the need for municipalities to put out inducements to industry, Tucson, Ariz., points out how a half-million dollar seed of effort grew into a multimillion dollar crop of realization.

(Continued on next page)

Municipal . . .

Eight inducements were offered the Hughes Co. in order to obtain a multi-million dollar electronics plant for Tucson.

The initial plant development will be about $9,000,000. It will have a peak work force of 8,000 and a pay roll of $35,000,000 annually.

The Tucson Airport Authority, which dealt with the Hughes Co. in order to acquire the plant, agreed to do $459,000 worth of work entailing these projects:

1–Construct a water line from airport wells to the plant property line and supply 1,600,000 gpd.

2–Build 1¼ mi of railroad spur from the branch line.

3–Construct a mile of sewer line.

4–Move and repair 2½ mi of fence.

5–Build a paved airplane taxiway from the airport taxiway to the Hughes property line.

6–Construct a paved highway across 3 mi of airport property.

7–Obtain title to land adjacent to the airport for resale to the Hughes Co.

8–Advance $75,000 to the Tucson Gas, Electric Light and Power Co., for half the cost of constructing 15 mi of power line to the plant site.

Under the final point, the authority has an agreement with the utility that the sum will be reimbursed within five years, provided the Hughes plant power use justifies the arrangement.

• **Municipal bonds**–Michigan Legislature has enacted a new law which allows municipalities to issue bonds up to 3 percent of their assessed valuation in any calender year without authority from voters. The old limit was one percent of the assessed valuation. Governor Williams has signed the bill and it is effective at once.

• **Water main cleaning**–The Louisville, Ky., Water Co. has started a 4-year, $50,000 program of cleaning out its water mains–a job that hasn't been done since 1929. The cleaning crews will open the big mains every 1000 ft to pull through a heavy cutting tool that slices off the inches of mineral incrustation deposited over the years.

• **Rubbish incinerator**–The St. Louis Board of Public Service and the Board of Estimate and Apportionment have approved a proposed city ordinance for the construction of a rubbish incinerator at a cost of $1,500,000. It is said that part of the plan is to have the plant produce electric energy for which the Union Electric Co. of Missouri might pay $125,000 a year.

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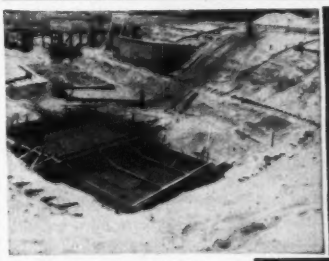

Tunnel and Elevator Pit, Marine Stadium, Jones Beach, L. I., N. Y. —Foundation's wellpoints dried up site allowing Lenart Constructors, Inc. to work 26' below water elevation.

LABOR

WAGE PLANNERS—Members of the Construction Industry Stabilization Commission—charged with special attention to construction's labor problems—pose for a group picture. Dr. George W. Taylor, chairman of the parent Wage Stabilization Board (dark suit, front row center) is flanked by members of the 12-man CISC and of his own board.

WSB moves to speed up wage-raises

Acting on its own directives and to implement recent decisions that will let wages rise with the cost of living the Wage Stabilization Board moved ahead on two fronts of interest to construction last week.

WSB got final approval from Stabilizer Eric Johnston for a policy that will allow wages of all workers to advance with the cost of living—if the employer is willing—and set about making policy to insure that all workers are treated alike (ENR Aug. 16, p.93).

On the construction side, WSB's construction arm—the Construction Industry Stabilization Commission—set up a three-point program to speed disposition of pending applications for approval of wage increases in the industry.

CISC's program:

1. Agreed to adopt WSB's new policy on deferred increases (increases called for at later dates in contracts signed before the Defense Production Act was passed Sept. 8, 1950). Accordingly, CISC will approve—unless they are clearly unreasonable—all applications for deferred increases included in pre-September, 1950 contracts. Deferred increases in contracts signed before the wage-price freeze of Jan. 25, 1951 will be approved on a case-by-case basis.

2. Set up a three-man special panel to act quickly on applications for approval of increases up to 10% above Jan. 15, 1950. Under CISC's regulation 1, issued July 26, construction wages were frozen at area rates. CISC must approve such increases individually, although parent WSB has given prior approval to all 10% increases in other industries.

3. Amended Regulation 1 to allow an automatic adjustment of wage rates paid to foremen and apprentices, whenever there is a change in the going rate paid to journeymen and first-class mechanics.

• **Basic wage policy**—The WSB, meanwhile, made clearer its policies on allowing wage rises pegged to the cost of living, now that it had Johnston's go-ahead.

One important feature is that all workers are to be treated alike—whether or not they work under a cost of living escalator, or whether or not they have a union.

It works like this: Where you had a cost-of-living escalator before the wage-price freeze, it may continue to function; where you start an escalator after Jan. 25, the percentage increase in pay may not exceed the percentage increase in the Bureau of Labor Statistics Consumer Price Index; where there is no escalator, wages may be adjusted every six months to take into account cost-of-living changes.

That's the basic policy. There are others on merit increases, promotions, fringe benefits and other wage costs, and more are being developed.

End quickie strike at AEC power plant

Strikes that involved more than 1,000 construction workers at the Atomic Energy Commission's $90 million electric plant at Joppa, Ill., ended as suddenly as they began last week.

Ironworkers first walked out—without giving reasons—for one day from their jobs inside the structure, and returned the next day. Immediately on their return they got into a dispute with laborers over who should erect crane equipment—and walked out again, accompanied by the laborers. Both groups returned the following day, without settlement terms.

Rules uncertain on bonus payments

Companies that pay bonuses of the profit-sharing type to executives and other salaried employees got word from the Salary Stabilization Board last week about how they may continue to pay such bonuses.

But those contemplating new bonus plans—or liberalizing existing plans—remained in the dark about what the rules will be. (The same situation exists, for that matter, regarding bonuses for wage earners subject to Wage Stabilization Board regulation.)

• **Confusion**—Both SSB and WSB have issued stop-gap regulations telling employers in effect that they may continue past bonus practises, while more permanent rules are being drafted under which new plans may be put into effect and old ones improved.

But there is a difference between the two regulations:

WSB Regulation 14 puts this limitation on continuing bonus plans: If the bonus is 25% or more of regular earnings, the payment must first be submitted to WSB for approval. If less, it may be paid without going to WSB (this refers only to bonuses of the Christmas or profit-sharing type, not to those based on units of production or hours of work).

SSB Regulation 2 puts no 25% limit on payments, but does provide other limitations—where the company's method of allocating the bonus is discretionary. In such cases, the total bonus fund is limited in dollar amount, and no bonus may exceed the highest bonus previously paid, even if profits rise, and cause a rise in funds set aside for bonus payments.

Companies with these "discretionary" bonus payments must make payments out of a "base bonus period" fund—either the total amount of bonuses paid in 1950, or (if 1950 is not typical) the average amount paid in bonuses in any three of the five years 1946-1950 inclusive.

Labor briefs . . .

• End D. C. strike—A two-week strike of Washington, D. C., commercial plasterers has ended—with a 30-cent hourly wage increase effective Nov. 1. Although contractors for 25 years have bargained through the Employing Plasterers' Association of the District of Columbia, this year they capitulated individually, and signed separate contracts after one of their members broke away. The new rate will be $3 an hour.

• Prospects good—surveying employment prospects in the construction industry, in relation to the impact of a defense economy, the Veterans Administration found that: Plumbing, pipefitting and construction machine operating have good prospects of continuing as attractive fields for mechanics; but stone-masonry, cement finishing, plastering, painting and paperhanging won't be so good.

• **Road men seek union**—Kentucky highway department employees in Gallatin, Carroll and Trimble counties recently voted to seek charter as a unit of the American Federation of State, County and Municipal employees.

• **Military aid**—If your job is near a military installation and you are in a tight labor area, part-time use of military personnel may ease your manpower problem. The Defense department has authorized military personnel to take part-time civilian jobs in agriculture and certain defense work in labor-short areas, where such jobs are approved by local commanders. The outside work must not interfere with regular military duties.

• **Arizona wages up**—Arizona has granted a blanket 8% wage boost to 1,400 employees of its highway department. The increase—which will cost the state $240,000 a year—is based on rises in the BLS price index.

• **AEC gets extra hours**—The Atomic Energy Commission—seeking to push construction of its Savannah River plant in Georgia—has established a 45-hour work week, consisting of five nine-hour days.

• **Watch the advertising**—The American Newspaper Publishers Association has agreed to cooperate with the Office of Defense Management to discourage classified advertising for workers which would be disruptive to the local labor market. In some cities, newspapers will not public "help wanted" notices for out-of-town employers unless such ads are cleared by the local government employment office.

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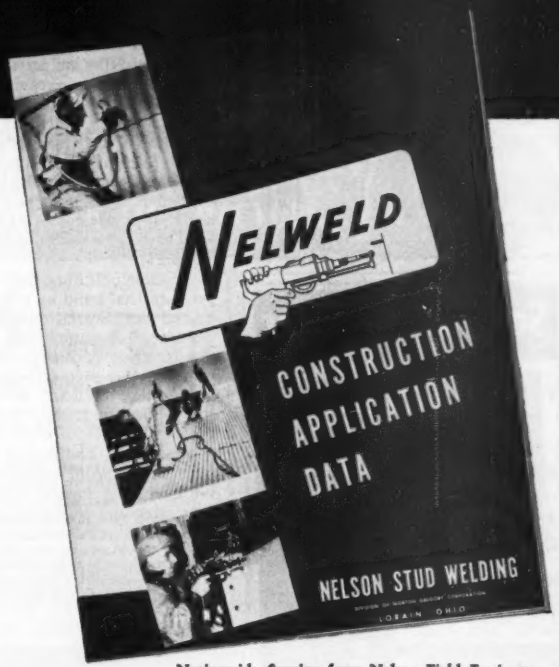

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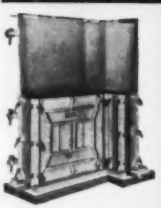

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CONSTRUCTION BUSINESS

NPA criteria to limit new building

Unless the plant is for manufacture of steel, aircraft, or some other urgently needed defense purpose, builders will have to forget about plans for plant expansion, observers said last week as they surveyed the National Production Authority's newly-announced criteria for allotment of scarce materials..

Trouble is there simply won't be enough steel, copper or aluminum available, probably not until the middle or end of next year. And even then, the builder won't be sure of getting construction material for urgently needed defense facilities unless the work has actually started.

• **Criteria for controllers**—The criteria set up by NPA are for the use of the controllers themselves in passing on applications for allotments of construction materials under the Controlled Materials Plan. But they affirm the worst fears of construction men: Because of metals shortages—especially structural steel—even some industrial facilities closely geared to mobilization may have to be postponed (ENR Aug. 16, p.23).

Besides indicating that some starts on industrial building will have to be spaced out, the criteria require postponement of virtually all commercial construction, and any other projects that do not qualify with NPA or other government agencies as essential to public health, safety, welfare, or to defense.

• **Breakdown**—The criteria will be applied to all major construction, with NPA breaking down construction into four categories to determine urgency:

Class I—Includes steel, aluminum, aircraft and similar plant expansions being built specifically for defense needs. This class includes some—but not all—construction for which the government has advanced certificates for five-year tax amortization or other assistance.

Class II—Projects for which amortization certificates have been issued and on which construction was started prior to August 3.

Class III—Plants certified for tax write-offs, on which construction started after Aug. 3.

Class IV—All other industrial projects.

Similar urgency classifications were established for non-industrial building, but so-called amusement-type construction will be banned, except where lack of allotments could be proved to cause "unreasonable" hardship.

• **Postponement**—All construction that can be postponed will receive no allotments for the fourth quarter, NPA warned. And no commercial project will obtain allocated materials in October-December unless there is a showing that the public interest is adversely affected by deferral.

After the fourth quarter, consideration will be given to requests for allotments for state, municipal or other public projects such as water systems and office buildings, and for general commercial projects and religious structures. This will also be done on a priority basis that will take into account such matters as service near military bases or defense plants, projects essential to health, and emergency and disaster projects.

DPA approves fast tax write-off for 55 plants

Defense Production Administration, in its last week before the 60 day tax amortization moratorium (ENR Aug. 23, p. 73) approved certificates of necessity for fast tax write-offs for 55 new or expanded defense facilities. Total amount of the week's certificates was $131.3 million, of which approximately 70% is allowed for quick amortization.

With this latest tabulation, rapid tax write-off has now been authorized for 3,234 new or expanded facilities. Total amount of the certificates for these facilities is $9 billion, of which about 70% is allowed for rapid amortization.

Steelmakers to favor established customers

The National Production Authority last week said it would grant permission to the steel industry to favor their established customers and reject orders from new customers.

Until now, NPA has required producers to accept controlled materials or government allotments on a first-come-first-served basis, without regard to buying records of the customer. "This has resulted," NPA commented, "in some disruption of producer-consumer relationships, and in some unnecessarily long distance movements of steel." The new order will permit producers to take care of government allocation orders from regular customers first, and reject others.

However, producers will still be required to accept and schedule authorized allotments where the steel requirement is urgent.

Levitt to build 16,000 homes in Pennsylvania

Levitt & Sons, Inc., will start construction this fall on a housing project which will eventually contain 16,000 homes, the firm has announced. (ENR Aug. 16, p. 102)

The site of the project will be near United States Steel Corporation's $400 million Fairless Works, now under construction in Bucks County, Pennsylvania.

Construction schedule calls for the houses to be built during 1952 at a minimum rate of 150 a week. Work on the model homes will begin in a month.

Pennsylvania Power plans $143-million expansion

Plans to spend $143 million during the next four and a half years have been announced by the Pennsylvania Power & Light Co. Approximately $12.7 million will go into improvements to be undertaken before the end of 1951.

By the end of 1955 $82 million will have been put into additional generating facilities and $61 million into additions and improvements to existing facilities.

Together this will boost the 10-year postwar program of the company to $280 million and more than double the physical plant it had at the war's end.

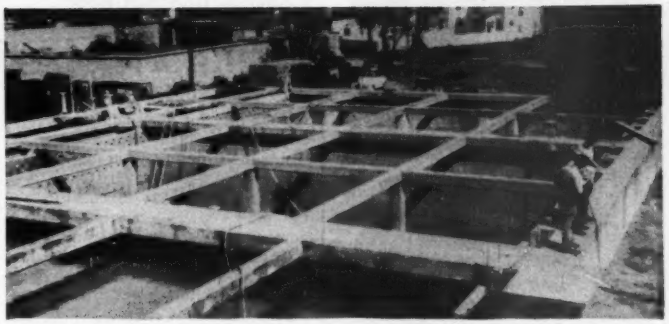
Sun Oil Co. announces new construction program

The Sun Oil Co. announced a two-year construction and modernization refinery program to cost $40 million. Of this amount $13.8 million is being spent this year with the balance of the work scheduled for 1952.

In addition more than $35 million will be spent this year for production facilities including natural gas—natural gasoline plant; transportation facilities and $4,000,000 for marketing and other facilities.

Development expenditures for the proving and development of prospective oil fields are scheduled to approach $27,000,000, an increase of $5,000,000 over last year. During 1951 Sun expects to expend $72 million on its over-all program.

(Continued on page 74)



CEMENT GUN COMPANY RELINES SETTLING BASINS WITH GUNITE

Photograph above shows three of four Settling Basins at a Virginia City's Municipal Water Works during the course of being relined with "Gunite". The concrete in this structure had disintegrated considerably, due to chemical and frost action.

Cement Gun Company crews replaced a "Gunite" lining on the floor and on the exterior walls of the basins and, in addition, grouted under the floor of all four basins to solidify the structure.

Additional reinforcing of steel mesh and "Gunite" was added at all corners where failure was indicated by leakage and the presence of large cracks.

This is just one of many typical "Gunite" repair jobs which have been done. For information on "your job" and description of many other "Gunite" jobs, performed by us, send details and request catalog A-2400—on your letterhead, please.

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Construction business . . .

Plant dispersal action stirs fight

President Truman's action last week to take into his own hands a drive to encourage industry to disperse its plants has stirred up what may become a major Congressional battle.

Of major interest to construction, the fight centers around location of new manufacturing plant, and the government's right to direct that location—through granting or withholding incentives to build.

• **President vs Congress**—What the President did was issue an official approval of a policy drawn up by the National Security Resources Board, that would:

Offer special incentives (certificates of necessity, allocation of materials, loans and defense contracts) to plants located outside highly congested areas. NSRB said there would be no favoritism of one section of the country over another, established industries wouldn't be moved, distance from congested areas needn't be more than 10 to 20 miles—even closer if natural protection exists.

This action was directly opposed to action only a few weeks before, when both houses of Congress overwhelmingly defeated a proposal calling for dispersal of future defense plant construction or expansion.

Congressmen—particularly Senator Martin of Pennsylvania—were incensed at the President's action. Martin, for instance promised he would introduce an amendment on the new Defense Production Act that would "unmistakably" ban plant dispersal through denial of government assistance.

• **Issues**—Actually, there isn't too much argument over the desirability of dispersing essential industry, so as to present a less vulnerable U. S. target for any possible attacker.

The real problem is how to get the job done in the most practical way—and without unduly affecting the economy of highly industrialized areas like the northeast.

(Private industry itself has taken long strides in this direction. A survey of ENGINEERING NEWS-RECORD's tabulations of contracts awarded (ENR July 26, p. 75) more than a month ago indicated that there is an easily identified shift of industrial building to the Mid-west and the area west of the Mississippi River, with lesser shifts to the South and Far West.)

Private industry has long been interested in the problem, but has been unable to get Congressional approval for any one plan. Congressmen profess to see one great danger in any such plan: Government could create or hold back any industrial area by simply granting or withholding its help.

In any case, there is little disagreement on details. New plants, all seem to agree, should be limited in size, should be served by more than one transportation facility, should be located on power and other utility grids, should be protected, if possible, by natural features.

Business Briefs . . .

• **First half output** of aluminum was higher than last year by 18%, according to Donald M. White, secretary to the Aluminum Association. The figure was at 807,181,724 pounds, the highest production since first six months of 1944.

• **Lumber's decline** continued this past week, both relative to the week previous and to the corresponding week last year according to the National Lumber Manufacturers Association. Output is down 5%, shipments 11% and new orders 20% as against last year.

• **Metal exports** will take the following pattern during the fourth quarter: Steel shipments will increase to 525,000 tons from 479,150 tons; Copper shipments will decrease by 17%; aluminum shipments will be less by 50,000 pounds than the 2.5 million pound quota of the third quarter. Figures are from the Office of International Trade.

• **Plywood output** for June of this year was 26% above June of 1950 according to the Bureau of Census of the Department of Commerce. The production figure given was 280 million sq ft.

• **The Office of Price Stabilization** has promised the Ready Mixed Concrete Industry Advisory Committee that in areas of critical cement shortages it will allow adjustments for increased transportation costs on that supply in new prices. Immediate attention to this matter has been requested by the committee.

• New controls chief—Ralph S. Trigg of New Mexico, formerly an assistant to the Secretary of Agriculture, is the new controls chief at the Defense Production Administration, in charge of dividing up scarce metals and materials.

Construction business . . .

UNIT PRICES BID BY CONTRACTORS

Hangar, apron and parking lot in Wichita, Kansas

Contracts on the construction of a flight hangar, apron and parking lot in Wichita, Kan., were awarded to the low bidders by the Boeing Airplane Co. of Wichita, on July 30, 1951.

The airplane hangar, approximately 195 by 790 ft with some 154,000 sq ft of floor space, was taken by a bid of $2,579,330, while the other two sections of the project, apron and parking lot, went to bids of $2,062,233 and $67,074 respectively. Engineers on the airport work are Wilson & Co., of Salina, Kan.

A total of eight firms submitted bids on the hangar with the low bid more than $2 million below the high bid and 6.4% below the next to low bid. Work on the apron, comprising some 400,000 cu yd of excavation and 190,000 sq yd of 17 and 15 inch reinforced concrete pavement, drew five bids, 30.5% apart, with the low bid 11% under its nearest competitor.

The canopy type doors on the hangar are the largest doors of their type to be installed in the country. Each section of the door is 66 ft long with a height of 55 ft, and is independently motor-operated without the use of the usual cables and counterweights.

Wage rates to be paid on the job are (the larger scale in each craft to be paid on the hangar construction): laborers, $1.20-$1.375; cement finishers, $1.80-$2.50; ironworkers, $2.25-$2.375; truck drivers, $1.15-$1.375.

Bidders on the flight hangar apron were:

1 Peter Kiewit Sons' Co., Wichita, Kan. (Contract)	$2,062,233
2 Western Cont. Corp., Sioux City, Iowa	2,310,024
3 Lee Sanders, Oklahoma City, Okla.	2,968,114

Items	Quantity	Unit prices 1 C	2
Excav, general cy	101,500	$0.415	$0.55
Removal of exist conc pavm & excav for new pavm sy	11,800	0.60	1.00
Conc pavm, non-reinf, 17" sy	165,000	7.35	7.95
Reinf, 15" sy	27,100	11.00	11.45
Tie-down anchor ea	540	3.70	18.00
24" RC pipe or 30" CMP lf	540	7.80	10.10
30" RCP or 36" CMP lf	960	9.75	13.10
36" RCP or 42" CMP lf	2,184	13.20	17.00
42" RCP or 48" CMP lf	748	16.70	21.30
48" RCP or 54" CMP lf	1,234	20.60	25.60
54" RCP or 60" CMP lf	4,688	25.00	30.40
Storm drain jacked in place, 54" RCP or 60" CMP lf	240	60.00	88.00
Roof drain exten, RCP, 12" lf	820	5.00	5.20
Gutter outlet conn to storm drain ea	32	70.00	320.00
Conc collect gutter lf	1,500	70.00	55.50
Inlet, typ I ea	1	1,250	1,500
Typ II ea	1	1,750	1,900
Manhole, typ I ea	11	1,200	1,700
Typ II ea	1	1,250	1,900
Typ III ea	1	2,000	3,300
Outlet struct ea	1	2,800	6,300
Undergrnd duct, 2-way, 3" lf	920	4.60	7.00
4" lf	920	4.50	7.60
4-way, 3" lf	860	6.00	10.00
4" lf	860	7.50	11.20
Cable manhole, typ I ea	1	2,400	4,000
Typ II ea	2	2,400	4,000
Typ III ea	1	1,550	2,300
Seeding A	20	100.00	100.00

Bidders on the parking lot included:

1 Peter Kiewit Sons' Co., Wichita (Contract)	$67,073.75
2 Geo. M. Meyers, Inc., Eldorado, Kan	68,882.50
3 Richie Bros., Wichita	71,576.25

Items	Quantity	Unit prices 1 C	2
Excav, general cy	5,200	$0.40	$0.85
Entrance, 7" conc pavm ea	3	1,120	1,000
Inlet ea	1	400.00	300.00
Base course T	6,100	4.50	4.25
Bit mat'l mixture T	2,000	10.00	10.30
Asph cement for bit mat'l gal	42,000	0.16	0.16
Bit prime coat gal	6,000	0.16	0.20
Guard post ea	32	15.00	10.00
Mangroof fence lf	275	5.75	7.00
Relocate existwire fence lf	1,875	1.50	1.50
Gates, double, opening 32' ea	3	300.00	300.00
Seeding A	1	100.00	300.00
Corrug met pipe, 15" lf	46	5.00	10.00

Bidders on the flight hangar included:

1 Manhattan Constr. Co., Muskogee, Okla. (Contract)	$2,595,397
2 S. Patti Constr. Co., Kansas City, Mo	2,772,453
3 Lee Sanders, Oklahoma City, Okla.	4,616,900

Items	Quantity	Unit prices 1 C	2
Flight hangar ls	$2,540,400		$2,678,540
VC sewer, 10" lf	2,795	5.88	9.60
CI sew, 8" lf	650	4.61	12.20
10" lf	1,960	5.99	13.35
CI water pipe-line, 10" lf	2,950	4.74	5.90
Steel gas pipe-line, 5" lf	3,800	2.59	4.10
For omitting, CO2 Fire exting system, deduct	$44,932		$44,932
*Control tower & appurt, deduct	16,066		19,000
Constr of cafeteria & office space above, deduct	39,323		45,000
Unit price adjustment for erection of Boeing furnished struct steel per ton	$70.00		$80.00

* Deducted from awarded contract

Gravel surface highway, Lander County, Nevada

Thirty-eight and one half miles of gravel surface road work in Lander County, Nevada, was awarded to a low bid of $259,900, on Aug. 2, 1951, by the State Department of Highways at Carson City, Nevada.

Wage rates in the area are: common labor, $0.85-$0.90.

Bidders included:

1 Wells Cargo, Inc., Reno, Nev., (Contract)	$259,990
2 Silver State Constr. Co., Fallon, Nev	286,032
3 Isbell Constr. Co., Reno	296,256

Items	Quantity	Unit prices 1 C	2
Signs ls		$2,000	$500.00
Reshape roadway mi	38.45	300.00	200.00
Water Mgal	4,502	1.00	1.00
Water equip, furnish ls		2,500	5,000
Power roller hr	720	5.50	6.00
Select mat'l base T	1,750	0.52	0.60
Select mat'l surf T	8,360	0.52	0.60
Gravel base, typ I T	34,350	0.55	0.60
Gravel surf T	102,580	0.66	0.75
Liquid ashp, seal, typ MC T	380	34.50	36.00
Rdmix, typ SC T	3,300	32.00	33.00
Rdmix mi	38.45	500.00	800.00
Intersection sy	1,650	0.15	0.50
Culv marker & guide post ea	390	5.00	6.00
Stripping deposit cy	25,820	0.20	0.20
Adjust cattle guard ls		1,000	1,500

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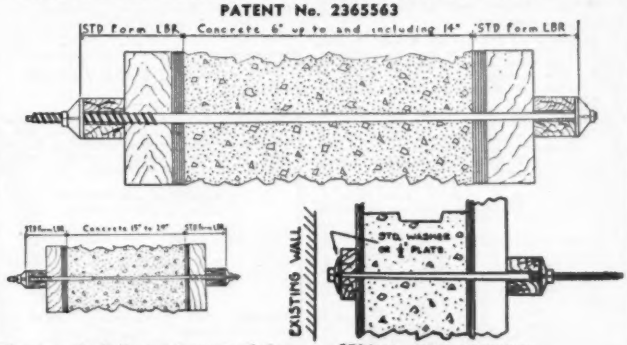

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* As quoted by most superintendents who have used both types.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Me., Limestone**—BOILER—B. A. 9/5—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., conversion of boiler and installation of condensate pumping unit, Limestone Air Force Base, Eng. 19-016-52-4.

BIDS ASKED—BUILDINGS

Conn., Milford—SCHOOL—B.A. 9/5—Town, Bd. Educ., Town Hall, 2 story, brick, steel, concrete school addns., alterations, W. Main St., $300,000. Plans deposit $25. ref. bidders, $5, ref. non bid. CD 1/5.

Mass., Rehobeth—SCHOOL—B. A. 9/7—Town, 1 story, 200x200 ft. masonry school. Plans deposit $50 refundable. CD 8/8.

BUILDINGS

LOW BIDS AND CONTRACTS

St. Edward's R. C. Church, Rev. J. A. Donoghue, 71 E. Main St., Brockton, Mass. rejected bids Aug. 7, parochial SCHOOL, auditorium, gymnasium, BROCKTON, MASS. Est. $300,000. CD 8/7.

A. Piotti Co., 730 Dudley St., Dorchester, Mass. LB $362,933. BUILDING, Blue Hill Ave. and Schuler St., ROXBURY, MASS. City, P. Welfare Dpt., 43 Hawkins St., Boston, Mass. Bids Aug 9. CD 8/1.

Boy's Club of Waltham, Inc., 686 Main St., Waltham, Mass. Separate Contracts. $600,000. CLUB BLDG., WALTHAM, MASS. CD 9/11/50.

Vara Constr. Co., Inc., 718 Huntington Ave., Boston, Mass. CA $722,177. Clark St. SCHOOL, WORCESTER, MASS. City, School Dpt., City Hall, Worcester, Mass. Awarded Aug. 14. CD 8/8, under LB.

▲ **Robert Glenn Co.,** 1138 Main St., Hartford, Conn., CA $1,500,000, HOSPITAL addn., NEW BRITAIN, CONN. New Britain Hospital, Corbin Ave. Extension, New Britain, Conn. CD 7/6, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

New Jersey—LANDSCAPING—B.A. 9/5—R. J. Abbott, comr. State Hy. Dpt., State Hy. Office Bldg., Trenton, landscape imprvt. 2.63 mi. Route 25, Sect. 34-L, from vicinity of Foundry St. South to Port St., city of Newark, Essex Co. Plans deposit $10.

† **Pa., Marietta**—SPRINKLER SYSTEM—B.A. 9/5—U.S. Eng., 121 N. Broad St., Phila., Zone 1, installing sprinkler system in warehouse 7, Marietta Transportation Corps Depot, Eng. 36-109-52-11.

BIDS ASKED—BUILDINGS

† **Md., Edgewood**—CHEMICAL—B.A. 9/5—U. S. Eng., 24 St. and Maryland Ave., P.O. Box 1715, Baltimore, Zone 3, enlargement, exten. ventilating duct sys. in chemical bldg. at Army Chemical Center, approx. 25 mi. northeast of Baltimore, ENG 18-020-52-3. CD 3/1.

† **N. Y., Tonawanda**—POST OFFICE REPAIRS—B.A. 9/5—Public Bldgs. Service, 250 Hudson St., New York, 13, N. Y., misc. repairs to U. S. Post Office.

▲ **N. Y., Westbury**—SCHOOLS—B.A. 9/5—Union Free School Dist. 1, Westbury, 3 grade schools, Dryden, Grand Sts. and Drexell Aves. $1,000,000.

† **Pa., New Cumberland**—WAREHOUSES, etc.—B.A. 9/5—U. S. Eng., 121 N. Broad St., Phila., Zone 1, 3 permanent warehouses and appurtenant work, New Cumberland General Depot, Inv. No. ENG 36-109-52-9.

† **N. J., Metuchen**—SHOP—B.A. 9/6—U.S. Eng., 121 N. Broad St., Phila., 1, Pa., automotive maintenance shop at Raritan Arsenal, Inv. No. Eng. 36-109-52-7.

▲ **N. Y., Manhasset**—HOSPITAL—B.A. end of Sept. or mid-October—North Shore Hospital, c/o Isidore, Rosenfield, archt., 23 W. 47 St., New York 19, N. Y., superstructure 150-bed general hospital on 12 acre site, $3,000,000; fdns. awarded to Vermilya-Brown Co., Inc., 100 E. 42 St., New York 17, N. Y., CD 5/9.

SOON LETS CONTRACT—BUILDINGS

▲ **N. J., Morris Plains-Hanover Twp.**—FACTORY, etc.—Monroe Calculating Machine Co., 555 Mitchell St., Orange, soon lets contract factory and laboratory. $3,500,000. CD 5/23.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau of Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Dunbar & Sullivan Dredging Co., 2312 Buhl Bldg., Detroit, Mich. LB $1,578,505, est. $1,841,900. 3.03 mi. N. Y. State Thruway-Mohawk Sect., canalized Mohawk River (Yosts-Fort Plain) M.T. 51-1, Montgomery Co.

Madison County Constr. Co., Inc., Madison, N. Y. LB $247,663, est. $260,000, 4.59 mi. Middle Grove-Dunhams C. R. 21, FA SS 51-18, Saratoga Co.

New York Materials, Inc., Fort Edward, N. Y., LB $119,610, est. $126,000. 5.34 mi. Stillwater-Schuylerville, Pt. 1 S.H. 5205, FA, RC 51-57, Saratoga Co.

E. G. De Lia & Sons Constr. Corp., New Hartford, N. Y. LB $88,673, est. $108,000, 2.65 mi. Gloversville-Vail Mills, FASS 51-17, Fulton Co.

County Asphalt, Inc., 129 Main St., Tarrytown, N. Y. LB $462,445, est. $688,000. 16.79 mi. Monticello Village Broadway and Jefferson Sts., 5490, Bloomingburg-Monticello Parts 2 and 3, S.H. 5457, 5457A, 5510 and 5510A, Middletown-Bloomingburg S.H. 5210, FA, RC 51-59, Sullivan Co.; LB $78,765, est. $98,000, 3.57 mi. Windsor-Deposit S.H. 5338, FA, RC 51-62, Broome Co.; LB $287,795, est. $419,000, 10.45 mi. Hancock-East Branch, Parts 1 and 2, S.H. 5456, 5246, East Branch-Sullivan Co., Line, Parts 2 and 1, S.H. 5340, 5383, FA, RC 51-58, Delaware Co.; LB $66,800, est. $88,000, 3.33 mi. Liberty-County Line, Part 1, S.H. 5223 3.33 mi., FA, RC 51-63, Sullivan Co.

Dann-Bar Contg. Co., Inc., 220 Pulawski St., Syracuse, N. Y. $443,688, est. $461,000, 0.57 mi. N. Y. State Thruway-Mohawk Sect.-Town Line Rd., M.T. 51-3, S.T. 51-5, Onondaga Co.

The Lane Constr. Corp., 37 Colony St., Meriden, Conn. LB $3,418,544, est. $3,986,000, 14.7 mi. Taconic State Parkway, Sect. 7, Part 3, 8, 9 Part 1, 9A, Part 2, 9B, Part 1 (Lake Taghkanic-West Taghkanic, C Rd. No. 12) Rock City-Lafayetteville S.H. 628, West Taghkanic-Ancram S.H. 9058, TSP 51-1, R.C. 51-6, Columbia and Dutchess Counties. Bids Aug. 15. CD 7/27.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

H. J. Williams Co., Inc., Sumner St. and W. M. R.R., York, Pa., CA, $559,909, crushed stone base with bit. 20 to 34 ft. 7.8 mi. and 5 rein.-con. structures from Bird in Hand to Spring Garden, Lancaster Co. Bids July 27. CD 8/1, under LB.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg, rejected bids Aug. 10, crushed stone base and bit. 1,993 ft. roadway and 1-beam bridge L.R. 15002 (1), East Bradford Twp., Chester Co. L.B. $259,700. CD 8/15, under LB.

James Julian, 405 S. DuPont Rd., Elsmere, Wilmington, Del., LB. Approx. $498,971, Shellpot interceptor sewer, Wilmington, Del. New Castle Co., Levy Court, Wilmington, Del., John Taylor, county engr.

Rice & Weidman, Manheim Pike and Keller Ave., Lancaster, Pa., LB, $419,445, primary sewage treatment plant, COLUMBIA, PA. Columbia Municipal Auth., Columbia, Pa. Bids Aug. 9. CD 7/13.

BUILDINGS

LOW BIDS AND CONTRACTS

Ranalio Constr. Co., 50-26 St., Pittsburgh, Pa., LB $370,000, 1 story, part bsmnt., 95x138 ft., 37x74 ft., steel frame, stone, church and rectory, GLASSPORT, PA. Holy Cross Roman Catholic Congregation, Glassport, Pa. H. Ernest Clark, 2 and Luce St., Monessen, Pa., archt.

Johnson & McIntire, 54 Phillips St., Sharon, Pa., LB $360,000, 1 story 62x200 ft., 100x145 ft., brick, steel frame, grade SCHOOL, SHARPSVILLE, PA. School Dist. of South Pymatuning Twp., R.D. 1, Transfer, Pa. Bids Aug. 9. CD 7/19.

▲ **Phillip Vizzini & Son,** 504 Stamford Rd., Baltimore, Md. CA $1,317,450. 2 story, brick, steel, concrete, cinder block L-shaped Southwest Baltimore Elementary SCHOOL, BALTIMORE, MD. City, Bureau Bldg. Constr. 410 Municipal Bldg., Baltimore 2, Md. Awarded Aug. 8. CD 8/7, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Va., Williamsburg—B.A. 9/4—State Hospital Bd., 9 N. 12 St., Richmond, water distr. sys., sanitary sewer sys., steam distr. sys. and electric distr. sys. at Eastern State Hospital. Plans deposit $25 each.

† **Tennessee**—B.A. 9/5—U. S. Eng., P.O. Box 97, Memphis, Zone 1, placing approx. 40,000 cu. yd. earthwork, 415 cu. yd. riprap stone and installing corrugated metal pipe culvert in connection with constr. spur levee in Lake Co. Levee and Drainage Dist., Miston, L-858 Levee, along left bank of Mississippi River, in Lake Co. about 5 mi. s. w. of Ridgely, point on levee approx. ½ mi. below Tenn. State Hy. 79, CIVENG 40-041-52-19.

† **Ga., Albany**—DEPOT IMPRVS.—B.A. 9/6—Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, Site Development NOY 29384. railroad constr. NOY 29392, both at Marine Corps Supply Depot. CD 2/5.

† **Kentucky**—B.A. 9/6—U. S. Eng., 830 W. Broadway, Louisville, supplementary flood protection works.

† **N. C., Fort Bragg**—B.A. About 9/6—U. S. Eng., 308 Custom House, Wilmington, paving motor pool in RTC area, Inv. No. Eng 31-075-52-6.

† **S. C., Charleston**—RAILROAD FACILITIES—B.A. 9/6—Sixth Naval Dist., P.O. Box 365, Naval Base, Charleston, rehabilitation railroad facilities at Naval Ammunition Depot Naval Base, NOY 29402, Spec. 31094. Plans deposit $10.

BIDS ASKED—BUILDINGS

Ga., Milledgeville—PSYCHIATRIC—B.A. 9/4—State Dpt. P. Welfare, State Office Bldg., Atlanta, psychiatric bldg. for Old People at State Hospital. Extended date. Gregson & Ellis, Mortgage Guarantee Bldg., Atlanta, archts. CD 7/30.

Va., Williamsburg—PATIENTS BLDG.—B.A. 9/4—State Hospital Bd., 9 N. 12 St., Richmond, continued treatment patients bldg. No. 29 at Eastern State Hospital. Plans deposit $50. CD 7/6. under LB.

† **N. C., Fort Bragg**—REPAIR SHOP—B.A. About 9/5—U. S. Eng., 308 Customhouse, Wilmington, repairs, addns. to ordnance heavy gun repair shop, Inv. No. Eng 31-075-52-7.

N. C., Goldsboro—HOSPITAL—B.A. 9/6—State Hospital Bd. of Control, Goldsboro, 17,000 sq. ft. dairy barn at State Hospital, H. Raymond Weeks, Inc., Snow Bldg., Durham, archt. CD 11/23/49.

La., Gretna—SCHOOLS—B.A. 9/12—Jefferson Parish School Bd., Metairie High School and Bridge City Colored School. Plans deposit $30 each, Sporl & Maxwell, 401 Vincent Bldg., New Orleans, archts. CD 6/1.

▲ **N. C., Raleigh**—SCHOOL—B.A. 9/12—Raleigh School Bd., Jesse O. Sanderson, supt., Negro Junior-Senior High School, $1,000,000. CD 2/21.

Ala., Huntsville—HOUSING—B.A. About 9/15—U. S. Eng., P. O. Box 1160, Mobile, 7, Ala., 120 Wherry Act Housing Units at Redstone Arsenal, $600,000. Van Keuren, Davis & Co., American Life Bldg., Birmingham, archts. CD 12/13.

La., New Orleans—GARAGE—B.A. About 9/15—City, garage for Sanitation Dpt. $500,000. David Godat & Assoc., Terminal Station Bldg., engrs.

▲ **Ala., Tuscaloosa**—HOUSING—B.A. 10/1—Tuscaloosa Housing Auth., Tuscaloosa, 340 housing units for negroes, $3,000,000. CD 2/12.

Miss., Columbus—SCHOOL—B.A. About 10/1—Columbus Municipal Separate School Dist., 75,000 sq. ft. White High School. $750,000. R. W. Naef, Masonic Temple, Jackson, archt. CD 5/18.

SOON LETS CONTRACT—BUILDINGS

N. C., Morganton—WAREHOUSE—Drexel Furniture Co., c/o Six Associates, Inc., archt., 1095 Hendersonville Rd., Asheville, soon lets contract, warehouse, $100,000.

N. C., Tryon—PLANT—Kilburn Mills, c/o Lockwood Greene Engineers, engrs., Montgomery Bldg., Spartanburg, S. C., soon lets contract, thread finishing plant. CD 6/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **U. S. Eng.,** P.O. Box 4970, Jacksonville, Fla., rejected bids July 31, Launching Pad 4 and renovation Launching Pad 3 at Long Range Proving Grounds, L.B. $226,707, COCOA, FLA. CD 8/9, under LB.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

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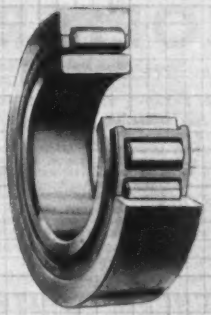

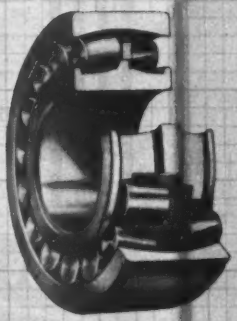

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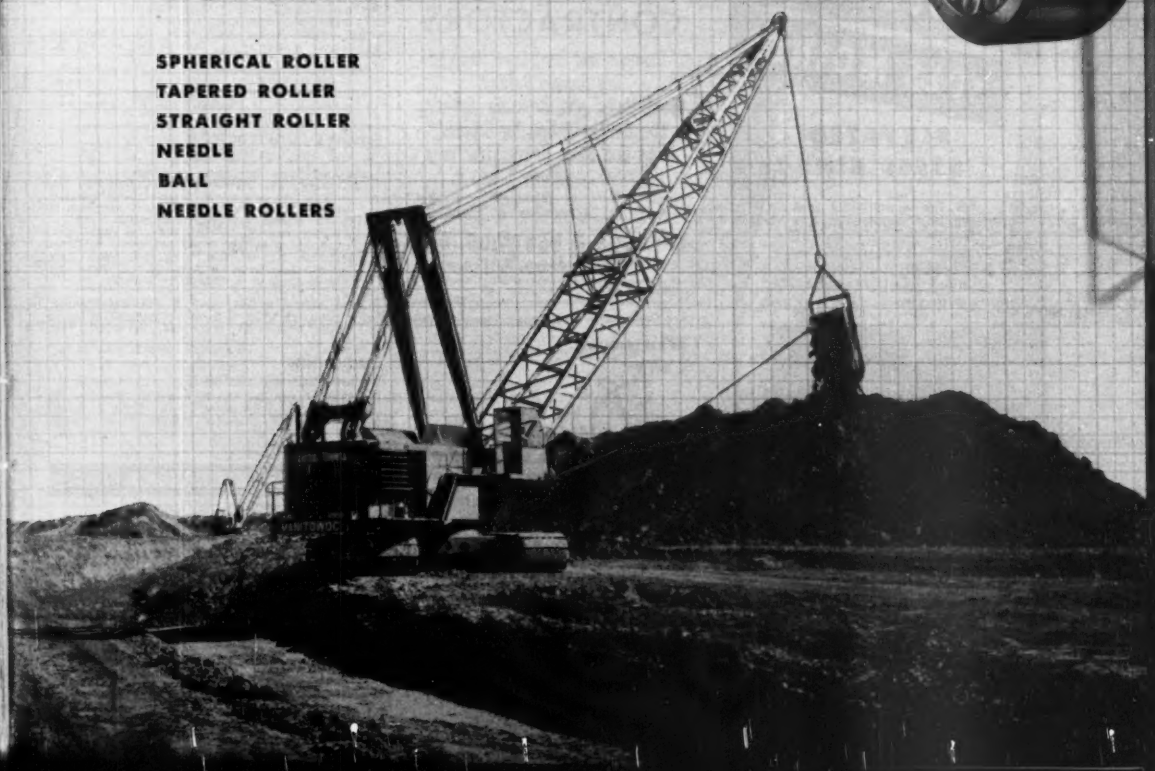

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BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Ray M. Lee Co.**, 1004 Edgewood Ave. N.E., Atlanta, Ga., LB, **$1,129,166**, HOSPITAL, FORT OGLETHORPE, GA. Tri-County Hospital Assn., Fore Oglethorpe, Ga. Bids Aug. 15. CD 7/30.

Lucille Warehouse Corp., Winter Haven, Fla. Owner Builds. Approx. **$200,000**. WAREHOUSE, WINTER HAVEN, FLA.

Werner Co., Inc., 1320 Pierre Ave., Shreveport, La. CA **$300,000**. HOSPITAL addn., SHREVEPORT, LA. Physicians & Surgeons Hospital, 803 Jordan St., Shreveport, La.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Ill., Wheaton—B.A. 9/4—City, City Hall, storm sewerage system, first section under R.R.R/W, in northeast part of city, $800,000. Walter E. Deuchler, 63 La Salle St., Aurora, engr. CD 7/28/50.

Wis., Milwaukee—GRADING, etc.—B.A. 9/6—Milwaukee Co., grading, draining, paving, etc., General Mitchell Field. Plans deposit $25. Thos. F. Gosgrove, airport engr. CD 11/9/49.

† **Ill., Scott Air Force**—ALERT HANGAR, etc.—B.A. 9/7—U. S. Eng., 520 Merchandise Mart, Chicago, 54, Ill., alert hangar, readiness bldg., utilities, etc. 34 dormitories, 4 bachelors officers quarters, 4 mess halls, 800-man mess hall, 2 academic bldg., WAF officers quarters, exterior utilities, water, storm and sanitary sewers, electric distr. pavement, sidewalks, etc. Bid date changed. CD 8/13.

BIDS ASKED—BUILDINGS

Ill., Berwyn—SCHOOL—B.A. 9/5—School Dist. 100, 6539 26 St., school addn., East Ave. and 37 St. $300,000. Ganster & Henninghausen, 222 Washington St., Waukegan, Ill., archts. CD 5/18.

O., Macedonia—EMPLOYEE, etc.—B.A. 9/6—State Dpt. of P. Wks., Columbus, physicians bldg. Unit 2 addn., alterations; employee's bldg., Hawthornden State Hospital. Plans deposit $15 latter project. H. G. Allen, cons. arch. Div. State Arch. & Engr., 705 Ohio Dpts. Bldg., Columbus, archt. CD 2/16.

Ill., North Chicago—SCHOOL—B.A. 9/11—School Dist. 64, 1110 18 St., school. $360,000. Fischer & Bryant, 79 W. Monroe St., Chicago, Zone 3, archts. CD 8/25/50.

Ind., Edgewood—SCHOOL—B.A. 9/11—N. P. Swift, twp. trustee, 1130 E. Epler St., Indianapolis, Zone 44, 2 story, bsmnt., 23,600 sq. ft., brick, stone, rein.-con. Junior High School, Edgewood near Indianapolis $420,000. Plans deposit $25. Lennox & Matthews, 644 E. Maple Rd. Blvd., Indianapolis, Zone 5, archts.

Wis., Eau Claire—JAIL, etc.—B.A. 9/12—Eau Claire Co., 3 story, 90x110 ft., rein.-con., stone, brick jail and office bldg. $700,000. Childs & Smith, 20 N. Wacker Dr., Chicago, 6, Ill., archts. CD 12/4/46.

Wis., Wilmot—SCHOOL—B.A. 9/13—Bd. Educ., 1 and 2 story, 138x200 ft-sq.ft., high school addns., alterations, $400,000. Extended date. Plans deposit $25. Boyum, Schubert & Sorenson, Hoeschler Bldg., La Crosse, Wis., archts. CD 7/6.

Ind., East Chicago—SHOP—Bids Asked—Continental Foundry & Machine Co., Railroad Ave. and 141 St., machine shop addn. $100,000.

Wis., West Milwaukee—WAREHOUSE—Bids Asked—Wisconsin Motors Corp., 1910 S. 53 St., Milwaukee, Zone 14, 2 story, 70x186 ft., concrete blocks, brick warehouse. H. M. Schmitt, 7004 W. Garfield Ave., Wauwatosa, Zone 13, engr.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

INDIANA—State Hy. Comn., Indianapolis,
Gast Constr. Co., Warsaw, Ind., LB, **$422,261**, est. $479,261, c. conc. wid'n. and bit coated aggregate resurf. 12.43 mi. State Rd. 28 and 9 Alexandria to Muncie, Madison and Delaware Counties.
rejected bids Aug. 14, c. conc. wid'n., b. conc. resurf. 10.18 mi. State Rds. 8 and 53, Hebron to Crown Point and 2.85 mi. conc. wid'n., bit. resurf. State Rd. 55 Crown Point to U. S. Rd. 20, Porter and Lake Counties, L. B. **$523,237**. Bids Aug. 14. CD 8/1.

James McHugh & Sons, 6449 S. Park Ave., Chicago, Ill., LB, **$565,970** on trunk and **$668,753** on lateral sewers, PEKIN, ILL. City Hall, Pekin, Ill. Bids Aug. 6. CD 7/25.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Siesel Constr. Co.**, 514 E. Ogden St., Milwaukee, 2, Wis., CA, **$1,283,403** EMPLOYEES BLDG. at Southern Wisconsin Colony & Training School, UNION GROVE, WIS. State Dpt. P. Welfare, Madison, Wis. Bids Aug. 3.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Colorado**—B.A. 9/4—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing and del. f.o.b. cars shipping point or f.o.b. cars Loveland or Walt Siding, Colo., butterfly valve, anchor bolts for valve for Flatiron Power and Pumping Plant, Colorado-Big Thompson Proj., Spec. DS 3507. L. N. McClellan, ch. engr.

Kan., West Plains—B.A. 9/4—City, Lowell Utz, clk., Part A, sewage treatment plant, lift station, etc., Part B, 28,158 lin. ft. 8 in. vitr. clay pipe, sewers

In place, 69 manholes, 19 flushing manholes. Plans deposit $20, The Ediger Eng. Co., P. O. Box 145, Wichita, engr.

Mo., St. Louis—B.A. 9/4—City, Bd. Pub. Service, Frank F. McDevitt, pres., 304 City Hall, 12 and Market Sts., Zone 3, rehabilitation of deck of portion of western railroad approach, portion of eastern railroad approach Douglas MacArthur Bridge over Mississippi River, $60,000. Plans deposit $10, Conway B. Briscoe, 311 City Hall, Zone 3, dir. Dpt. Pub. Utilities. CD 3/7/46.

† **Colorado**—B.A. 9/5—Bureau Reclamation, Dpt. Interior, Loveland, Constr. Rattlesnake Dam, Estes Park-Foothills Power Aqueduct, Colorado-Big Thompson Proj. approx. 11 mi. west of Loveland, Spec. DC-3503.

† **South Dakota**—DISTRIBUTION BOARD, BATTERY CHARGERS—B.A. 9/6—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Huron, Mt. Vernon, Sioux Falls and Watertown, one distribution board, composed of misc. alternating-current power board "DHA" and direct-current distribution board "BHA" incl. 2 battery chargers each for Huron, Mount Vernon, Sioux Falls and Watertown sub-stations, Inv. No. DS-3520.

† **Texas**—B.A. 9/6—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., one lot of 8x12.5 ft. bulkhead gates, two lots bulkhead gate seats, two bulkhead gate lifting frames for United States and Mexico sides, Falcon Dam and power plant, Spec. O-4549 (IBWC). L. N. McClellan, c/o owner, ch. engr. CD 1/6/49.

† **Texas**—B.A. 9/7—Bureau Reclamation, Dpt. Interior, El Paso, six motor-operated regulating gate hoists, one lot metal work for spillway at Falcon Dam and Power Plant, Spec. D 45-19 (IBWC). L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, Colo., ch. engr.

† **Colorado**—B.A. 9/11—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Granby, Colo., discharge pipe for 2 pump units for Willow Creek Pumping Plant, Colorado-Big Thompson Proj., Spec. DS-3512. L. N. McClellan, ch. engr.

Mo., St. Louis—B.A. 9/11—City, Frank J. McDevitt pres. Bd. Pub. Service, 304 City Hall, 12 and Market Sts., Zone 3, furnishing, installing pre-fabricated hangar at Lambert-St. Louis Municipal Airport, Robertson. $335,000. Albert Osburg, 301 City Hall, Dpt. Bridges & Bldgs., archt. Walter R. Crecelius, c/o owner, ch. engr. CD 6/21.

▲ **Mo., St. Louis**—RUNWAYS—B.A. 9/18—City, Frank J. McDevitt, pres. Bd. Pub. Ser., 304 City Hall, 12 and Market Sts., 150x5,400 ft. north-south runway, 2,700 ft. exten. of east-west runway, 75x6,000 ft. taxiway at Lamert-St. Louis Municipal Airport, Robertson, St. Louis Co., $1,687,595. Guy Brown, 325 City Hall, Zone 3, ch. engr. CD 11/14.

BIDS ASKED—BUILDINGS

Ark., Fayetteville—SCHOOL—B.A. 9/4—University of Arkansas, Fayetteville, law school, $375,000. Plans deposit $25. Paul Young, Jr., Fayetteville, archt. CD 7/26.

Tex., Jacksonville—SCHOOLS—B.A. 9/6—Jacksonville Independent School Dist., negro high school, $325,000; 2 elementary schools, gymnasium, cafeteria, shop, $550,000. Plans deposit $25 each, Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, archt. and engr. CD 4/3.

Mo., St. Louis—HOUSE OF PHILOSOPHY—B.A. 9/7—Missouri Province, Society of Jesus, Very Rev. Daniel H. Conway, S. J. Provincial, 4511 W. Pine Blvd., Zone 8, 5 story, ground floor, 43x269 ft., 3 story, ground floor, 57x92 ft., wing, 2 story, ground floor, 59x110 ft. wing, brick, rein.-con. stone House of Philosophy, southwest W. Pine and Spring Aves. Leo A. Daly Co., 1726 Ambassador Bldg., 411 N. 7 St., Zone archts.

Tex., Anson—HOSPITAL—B.A. 9/10—City, hospital, Proj. Tex. 88, $300,000. Plans deposit $45. Don W. Smith, Sweetwater, archt. R. S. Smith, T & P Bldg., Fort Worth, and Rob. L. King, 2410 San Antonio St., Austin, engrs. CD 2/2.

Tex., Waxahachie—SCHOOL—B.A. 9/13—Waxahachie Independent School Dist., masonry high school; alteration; addns. to some existing schools, $450,000. Wilson & Patterson, 202 Major Bldg., Fort Worth, archts. CD 11/24/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OKLAHOMA**—Oklahoma Turnpike Auth., 100 N. E. 23 St., Oklahoma City, Zone 5,

S. E. Evans, Fort Smith, Ark. CA **$298,046,** est. $329,300, grading, drainage 2.1 mi. beginning from above proj. and exten. northeast, Lincoln Co.; CA **$362,011,** est. $405,500, grading, drainage 2.8 mi. beginning 0.2 mi. east of S.H. 40 and exten. northeast, Lincoln Co.

Brewer & McMichael, Holdenville, Okla. CA **$275,721,** est. $330,300, grading, drainage 3.5 mi. from above proj. exten. northeast, Lincoln Co.

Fullerton & Hussey, 921 W. Main St., Oklahoma City 2, Okla., CA **$342,972.** est. $335,700, grading, drainage 3.9 mi. beginning 8.3 mi. east of Chandler interchange and exten. northeast, Lincoln Co.

M. E. Gillioz, Monett, Mo., CA **$411,095.** est. $430,100, grading, drainage 3.7 mi. beginning 2.8 mi. east of Briston interchange and exten. northeast in Creek Co. Grand total $1,689,845. Bids Aug. 14, awarded Aug. 15. CD 7/27.

Aspland Constr. Co., Enid, Okla. CA **$87,500.** sewage disposal plant, outfall lines, SUPPLY, OKLA. Bd. Affairs, Capitol, Oklahoma City 5, Okla. C. E. Bretz, 1916 N. Broadway, Oklahoma City, Okla., engrs.

BUILDINGS

LOW BIDS AND CONTRACTS

W. A. Klinger Constr. Co., 201 Benson Bldg., Sioux City, Ia. CA, **$632,044,** general contract, HOSPITAL addn., SIOUX CITY, IA. Lutheran Hospital, 2714 Pier St., Sioux City, Ia. Bids July 31. CD 8/14, under LB.

Unit Structures, Inc., Peshtigo, Wis. Owner builds. Approx. **$100,000,** mfg. PLANT, MAGNOLIA, ARK.

▲ **Procon Corp.,** c/o Universal Oil Products Co., 310 S. Michigan St., Chicago, Ill. CA, **$1,500,000,** 1,500 bbl. high octane REFINERY addn., BRISTOW, OKLA. Wilcox Oil Co., 310 W. 6 St., Tulsa 2, Okla. Awarded Aug. 10.

Oklahoma Furniture & Rug Co., 310 N. Hudson St., Oklahoma City, Okla. Owner Builds. **$300,000,** furniture and rug WAREHOUSE, OKLAHOMA CITY, OKLA. Berlowitz & Commander, 1916 N. Broadway, Oklahoma City, Okla., archts.

Horster Constr. Co., Tri-States Bldg., Tulsa, Okla. CA, **$305,360,** SHOPPING CENTER, 21 and Utica Sts., TULSA, OKLA. Nix & Carter, 2100 S. Utica St., Tulsa, Okla. McCune & McCune, Tri-States Bldg., Tulsa, Okla., archts.

B. B. Adams, 716 First National Bank Bldg., Dallas, Tex. CA, **$328,000,** TELEPHONE bldg., FORT WORTH, TEX. Southwestern Bell Telephone Co., 308 S. Akard St., Dallas, Tex. W. Mier, c/o owner, ch. engr. Bids July 20.

Cain & Cain, Major Bldg., Fort Worth, Tex. CA, **$88,500,** motor freight TERMINAL, FORT WORTH, TEX. H & N T Motor Freight Co., Bailey Subdivision, Fort Worth, Tex. Bids Aug. 9. CD 8/9.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Calif., Palm Springs—B.A. 9/7—Sanitary Dist., City Hall, installing sanitary sewers in and next to El Mirador Hotel. J. F. Davidson, 3637 7 St., Riverside, engr.

Calif., Carmel — B.A. 9/10 — Carmel Sanitary Dist., Ricketts Bldg., sewage treatment plant imprvs. Plans deposit $10. C. C. Kennedy Eng. Co., 604 Mission St., San Francisco, engr. CD 6/27, under LB.

Wash., Wenatchee—B.A. 9/10—Chelan Co. Public Utility Dist., c/o Stone & Webster Eng. Corp., engrs., 49 Federal St., Boston, Mass., 80-ton electric gantry crane for Rock Island Dam Expansion. Extended date. CD 7/13.

† **California**—PENSTOCKS—B.A. 9/11—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars, shipping point or f.o.b. cars, Government storage area adjacent to site of Folsom Power Plant, penstocks for Folsom Power Plant, American River Div., Folsom Power Unit, Central Valley Proj. Spec. DS-3511. L. N. McClellan, ch. engr.

† **Idaho**—TURBINES—B.A. 9/11—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., hydraulic turbines for American Falls Power Plant Minidoke Proj., Spec. DS 3487. Extended date. CD 7/12.

Wash., Seattle — NATATORIUM — B.A. 9/11 — P. R. Hendricks, city purch. agt., 511 County-City Bldg., Seattle, Zone 4, remodel Aki Natatorium, $175,000. G. Runciman, Lloyd Bldg., Seattle, Zone 1, engr. T. Damm, 516 James St., Seattle, Zone 4, archt. CD 12/13/48.

† **Calif., San Pedro**—AVIATION FUEL FACILITIES—B.A. 9/13—Eleventh Naval Dist., San Diego, addnl. aviation fuel facilities at U. S. Naval Supply Depot, NOY 29117, Spec. 30837. Plans deposit $6.

† **Washington**—B.A. 9/13—U. S. Eng., City-County Airport, Walla Walla, constr. Pasco Levees along left bank of Columbia River in vicinity of Pasco Franklin Co., Serial No. CIVENG 45-164-52-9. CD 8/23/45.

† **Oregon**—SUB-STATIONS—B.A. 9/14—U. S. Eng., Bldg. 602 City-County Airport, Walla Walla, Wash., powerhouse unit sub-stations, Units 1 to 8, McNary Dam, Inv. No. CIVENG 45-165-52-2. Extended date. CD 7/11.

BIDS ASKED—BUILDINGS

† **Calif., Livermore**—LAUNDRY—B.A. 9/11—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., Laundry Bldg. 65 for Veterans Administration Hospital. Spec 51163, No. 12-4204.

Calif., Roseville — HOSPITAL — B.A. 9/12 — City, City Hall, hospital, on Old Shalley Ranch, 10 acre tract near here. $300,000. Plans deposit $20. Clarence C. Cuff, 1315 O St., archt. CD 1/5/49.

Wash., Leavenworth—SCHOOL—B.A. 9/12—School Bd., 1 story frame school, $344,000. Plans deposit $25. W. H. Rothe, 807 W. Yakima Ave., Yakima, Wash., archt. CD 4/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **WASHINGTON**—State Hy. Dpt., Olympia,

Paul Jarvis, Inc., 1070 W. Ewing St., Seattle, Wash., CA **$1,917,000,** piers and rein.-con. approach span on Columbia River bridge on Primary State Hy. 3, Franklin Co. Bids Aug. 14, awarded Aug. 14. CD 8/1.

Willamette Iron & Steel Wks., 3050 N.W. Front St., Portland, Ore., CA. **$429,403,** tainter gates and other installations for Chief Joseph Dam, Bridgeport, WASHINGTON. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids June 26. CD 7/5, under LB.

† **Industrial Electric Co.,** 1828 Yale Ave., Seattle, Wash., CA, **$323,044,** est. $376,096, liquid fuel sys. addns., at Larson Air Force Base, Inv. No. ENG 45-165-52-2, MOSES LAKE, WASH. U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash. Bids Aug. 14. CD 7/30.

Fairview County Water Dist., Costa Mesa, Calif., rejected bids July 26, rebuild water sys., COSTA MESA, CALIF. L.B. **$337,339.** CD 8/7, under LB.

† **Bell Constr. Corp.,** 2961 S. Fairfax St., Los Angeles, Calif., LB, **$621,800** addnl. aviation fuel storage, Marine Corps Air Station, Spec. 28921, Los Alamitos and EL TORO, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids July 31. CD 7/18.

† **Newberry Electric Co.,** 1038 Venice Blvd., Los Angeles, Calif., CA., **$275,838.** electrical distr. sys. for ballistic ground ranges, Spec. 30040, INYO-KERN, CALIF. Dpt. Navy, Eleventh Dist., San Diego, Calif. Bids July 19. CD 6/26.

J. A. Thompson & Sons, Box 518, Inglewood, Calif., LB, **$197,998** streets in Tracts, 17222 and 17223; **Mike Miller Co.,** 877 N. Bunker Hill Ave., Los Angeles, Calif., **$60,347,** sewers in Tracts 17222 and 17223, NORTH LONG BEACH, CALIF. Lakewood Park Corp., c/o Engineering Service Corp., engrs., 1489 W. Washington Blvd., Los Angeles, Calif. Bids July 16.

The Northwest Excavating Co., 14825 Oxnard St., Los Angeles, Calif., LB. **$74,153,** est. $116,178, sanitary sewers in Short and Chase Aves. Sewer Dist., LOS ANGELES, CALIF. City Council, City Hall, Los Angeles, Calif. Bids Aug. 1. CD 7/16.

MacDonald & Kruse, 7540 Wheatland Ave., Los Angeles, Calif., LB. **$71,712,** est. $60,000, grading, paving, imprv. Century Blvd., LOS ANGELES, CALIF. City Council, City Hall, Los Angeles, Calif. Bids Aug. 8. CD 7/23.

M. Ritchie, 2433 Cherry St., Fresno, Calif., LB. **$38,884.** Stockton St. Dam approx. 2 mi. north east of MARIPOSA, CALIF. Bd. Directors Mariposa Pub. Utility Dist., Mariposa, Calif. Bids Aug. 13. CD 8/2.

McGuire & Lester, 796 66 St., Oakland, Calif., LB. **$85,485.** rein.-con. water main in Berkeley under LS 549****O. **A. Fogelberg,** Mt. Diablo Blvd. and Elizabeth St., Lafayette, Calif., LB. **$38,995,** install C.I. water main LS 552, OAKLAND, CALIF. East Bay Municipal Utility Dist., 512 16 St., Oakland, Calif. Bids Aug. 10.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Ellis W. Barker Co.,** Ness Bldg., Salt Lake City, Utah, LB **$1,399,400,** High SCHOOL;

A. H. Palmer & Sons Co., Logan, Utah, LB **$320,896,** plumbing and heating, OGDEN, UTAH. Bd. Educ., 2351 Grant Ave., Ogden, Utah. Bids Aug. 9. CD 7/17.

Brazier Constr. Co., 309 Pontius Ave., Seattle, Wash., LB, **$372,051,** general contract, 1 story masonry SCHOOL at Ault Field, U. S. Naval Air Station, Whidbey Island, OAK HARBOR, WASH. Community Facilities Serv., Housing and Home Finance Agency, New World Life Bldg., Seattle, 4, Wash. Bids Aug. 14. CD 7/26.

Norse Home, Inc., c/o Dr. T. W. Buschmann, 1000 14 Ave. N., Seattle, Wash., Day Labor. Approx. **$370,000,** 5 story, bsmnt, rein.-con. HOME for Aged. SEATTLE, WASH. CD 10/13/49.

J. L. Hansen, Coquille, Ore. CA **$538,201.** high SCHOOL addn., COQUILLE, ORE. School Dist. 8, Coquille, Ore. Stokes & Allyn, Hughes Bldg., Portland, Ore., archts. CD 3/20.

Haas & Rothschild, 274 Brannan St., San Francisco, Calif., CA, **$532,000,** general constr. STATE COLLEGE, Humboldt State College, ARCATA, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Awarded 8/10. CD 7/26, under LB.

▲ **Pozzo Constr. Co.,** 2403 Riverside Dr., Los Angeles, Calif., CA, **$1,500,000,** 5 story, steel, masonry hospital addn. BURBANK, CALIF. St. Joseph's Hospital (Sisters of Charity) 501 Buena Vista St., Burbank, Calif. CD 6/30/50.

▲† **M. H. Golden Constr. Co.,** 2485 Noell St., San Diego, Calif., CA, **$3,438,124,** BARRACKS, mess facilities NOY 24968, Spec. 27072, CAMP PENDLETON CALIF,. Eleventh Naval Dist., San Diego, Calif. Bids July 12, awarded Aug. 13. CD 6/25

T. A. Stanfield, 896 E. Base Line, San Bernardino, Calif., CA. **$465,655,** Glenavon SCHOOL, GLENAVON, CALIF., Glenavon School Dist., Glenavon. Awarded Aug. 10. CD 10/9/50.

E. C. Nesser Co., 4822 W. Jefferson Blvd., Los Angeles, Calif., LB **$780,000,** 154 St. SCHOOL addns., LAWNDALE, CALIF. Lawndale School Dist., Lawndale, Calif. Bids Aug. 9. CD 3/1.

▲ **Means & Ulrich,** 111 E. 6 St., Santa Ana, Calif., CA **$1,096,023,** est. $1,000,000, 75-bed rein.-con. HOSPITAL, NEWPORT BEACH, CALIF. Hoag Memorial Hospital c/o H. C. Chambers & Lester Hibbard, archts., 124 W. 4 St., Los Angeles, Calif., Bids July 27. CD 8/17, under LB.

Mark C. Walker & Son, 2621 S. Main St., Santa Ana, Calif. LB. **$474,049,** est. $300,000. 38,000 sq. ft. Johnson SCHOOL, NORWALK, CALIF. Norwalk School Dist., 12110 E. Walnut St., Norwalk, Calif. Bids July 31. CD 7/17.

Ira H. Larsen Co., 64 S. Park St., San Francisco, Calif., LB. **$359,063,** general constr., mechanical, plumbing, electrical work for Ocean View Heights Home SCHOOL unit, SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif., Bids Aug. 8. CD 7/23.

San Gabriel School Dist., 301 S. San Gabriel, Calif. rejected bids July 18, Roses Road SCHOOL, SAN GABRIEL, CALIF. Est. **$422,220.** Kistner Curtis & Wright, 816 W. 5 St., Los Angeles, Calif., archts.

▲ **Kemp Bros.**, 8750 Mettler St., Los Angeles, Calif., CA, $1,300,000, 1 and 2 story, brick Whittier High SCHOOL 2, WHITTIER, CALIF. Whittier Union High School Dist., 610 W. Philadelphia St., Whittier, Calif. Bids Aug. 8. CD 7/19.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska**—TURBINES—B.A. 9/13—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing two 25,000 hp. 600-rpm. vertical-shaft hydraulic turbines for Eklutna Proj., Spec. DS-3506. adv. ENR 8/9.

† **Alaska**—TUNNEL—B.A. 9/11—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., constr. Eklutna tunnel, Eklutna Proj., approx. 30 mi. northeast of Anchorage. Spec. DC-3523; adv. ENR 8/23. CD 6/28, under LB.

† **Alaska, Anchorage**—B.A. 9/12—Alaska, P. Wks., Dpt. Interior, Juneau, extension, replacement water system. $150,000. Plans deposit $25. CD 5/23.

† **Alaska, Hoonah**—B.A. 9/12—Alaska Pub. Wks., Dpt. Interior, Juneau, imprv. water supply sys., Proj. 50-A-76, $129,000. Plans deposit $25. F. J. Toner, Box 50, Juneau, engr.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Alberta—B. A. 9/4—D. W. Laird, engr., Defense Constr., Ltd., 400 Kensington Bldg., Winnipeg, Man. water supply development from Battle River to Wainwright. Plans deposit $50.

Alta., Medicine Hat—AIRPORT IMPRVS.—B.A. 9/4—Dpt. Transport, c/o F. T. Collins, secy., Ottawa, Ont., surf. tr. outer runways, taxi strips and parking apron at airport. Approx. $150,000. Plans deposit $10. CD 5/10/49.

N. S., Halifax—B.A. 9/4—P. J. Mangan, 1032 Gottingen St., jetty, landward deck and storage. Plans deposit $50. Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont., engrs.

N. S., Brooklyn—B.A. 9/5—Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater repairs, imprvs. $200,000. Plans deposit $20. R. Blais, c/o owner, engr. CD 4/5/46.

Sask., Saskatoon—Bids Asked—D. W. Laird, 400 Kensington Bldg., Winnipeg, Man., water distr. sys., and pumphouse for Govt. of Canada. Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont. Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont., engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

BRITISH COLUMBIA—Province of B. C., Douglas Bldg., Victoria, B. C.

Dawson & Hall, Ltd., 775 Clark Dr., Vancouver, B. C., LB. $84,590, substructure for Kicking Horse Bridge 4, Kootenay-Columbia Hy. Bids Aug. 10. CD 7/31.

Swansea Constr. Co., Ltd., 363 Rogers Rd., Toronto, Ont., CA, $89,169, 5,342 ft. 18- to 36-in. concrete and vit. sewer, appurtenances, OAKVILLE, ONT. Town, C. H. Byers clk., Oakville, Ont. Bids July 27.

Stewart Constr. Co., Sussex, N. B., CA, $200,000, repairing, paving 12 mi. town streets, 10 mi. which forms part of Trans-Canada Hy., SUSSEX, N. B. Town, Municipal Bldg., Sussex, N. B. Awarded Aug. 14. CD 2/16.

Malvern Constr. Co. Ltd., 490 Dawes Rd., Toronto, Ont., CA, $600,000, 25,200 ft. 15- to 30-in. sewer pipe for Massey Creek trunk sewer, TORONTO, ONT. Scarborough Twp., 2001 Eglinton Ave. E., Toronto, Ont. Bids June 18. awarded Aug. 14. CD 6/8.

Leo Paul La Salle, Crabtree Mills, Que., CA, $48,944, filtration plant; Francis Hankin & Co. Ltd., 2032 Union St., Montreal, Que., CA, $400,000, mechanical equip.;

Joliette Constr. Co. Ltd., 624 Champlain St., Joliette, Que., CA, $37,000, water and sewer services, CRABTREE MILLS, QUE. Village, L. St. Georges, secy., Crabtree Mills, Que. H. W. Lea, 1226 University St., Montreal, Que., engr. Bids July 30. CD 7/25.

Northern Electric Co. Ltd., 1600 Notre Dame W., Montreal, Que., CA, $70,899, 25 traffic lights at street intersections; Bedard-Girard Ltd., 117 Lagauchitiere St., Montreal, Que., CA, $137,475, traffic lights at 53 street intersections, MONTREAL, QUE. Municipality, Montreal, Que. Bids June 23. CD 6/4.

BUILDINGS

LOW BIDS AND CONTRACTS

Claydon Co. Ltd., 108 Syndicate Ave., Fort William, Ont., LB $465,000, steel, concrete SCHOOL addn., FORT FRANCES, ONT. Fort Frances Bd. Educ., Mrs. C. E. Holland, secy., Fort Frances, Ont. L. Y. McIntosh & Assoc., 416 Victoria Ave., Fort William, archts.

W. H. Yates Constr. Co. Ltd., 400 Wellington St., N., Hamilton, Ont., CA, $498,000, 3 story, bsmnt., 62x153 ft., rein.-con., brick, stone TELEPHONE BLDG., NIAGARA FALLS, ONT. Bell Telephone Co. of Canada Ltd., 76 Adelaide St. W., Toronto, Ont. Allward & Gouinlock, 57 Bloor St. W., Toronto, Ont., archts. Awarded Aug. 7.

Stowe & Gould, 29 Kelsonia Ave., Toronto, Ont., LB Approx. $300,000, SCHOOL, Cowan Rd. opposite Fairmount Ave., TORONTO, ONT. Public School Area 2, Scarborough Twp., F. W. Chiddicks, secy., Toronto, Ont. Bids July 24. CD 7/9.

L. Donolo, Inc., 8320 Blvd. St. Lawrence St., Montreal, Que., CA, $150,000, 2 story 90x100 ft., rein.-con., brick FACTORY, Greene Ave., MONTREAL, QUE. J. Lucas Canada Ltd., 7035 Grand Ave., Montreal, Que. L. Lemieux, 760 Victoria Sq., Montreal, Que., archts.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Miss., Gulfport**—City, voted $2,500,000 bonds, water and sewerage sys. imprvs. CD 7/31.

O., Columbus—City, Elmer Keller, service dir., City Hall, water line north from filter station on Dublin Rd., linking with present feeder main at Cooke Rd. and Indianola. $500,000. Charles B. Cornell, city water div. engr. CD 1/18/45.

O., Norwalk—City, 350 m.g. reservoir covering 65 acres, to double present water supply, $227,225. G. E. Scott, 315 Citizens Bank Bldg., consult. engr.

Okla., Shawnee—City, voted $650,000 bonds, WW exten., Benham Engineering Co., American Bank Bldg., Oklahoma City, consult. engrs. CD 7/25.

▲ **Tex., Cisco**—City, Proj. 1, water treatment plant, $450,000; Proj. 2, water supply sys., $550,000; Proj. 3, water mains, $250,000. Homer A. Hunter, 704 Greenville Ave., Dallas, consult. engr. CD 3/15.

SEWERS, WASTE DISPOSAL

▲ **Ark., Hot Springs**—City, sewer imprvs., extens. $3,500,000. Ralph Delaney, Ada, Okla., consult. engr.

▲ **Ill., Arlington Heights**—Village, Village Hall, sewage treatment works, sanitary sewer lines, water system imprvs., $1,000,000. Consoer, Townsend & Assocs., 351 E. Ohio St., Chicago, 11, Ill., consult. engrs.

Ill., Rockford—Winnebago Co., Court House, storm sewers, $445,000.

Ind., Indianapolis—Bd. P. Wks., Henry Mueller, secy., City Hall, Zone 4, 34 St. main sewer, 2nd unit, Temple Ave. to Forest Manor at 32 St. $556,547.

▲ **Mass., Natick**—Town, Water & Sewer Dpt., sewers, sewage disposal and pumping station, equip., $1,000,000, Hajley & Ward, 73 Tremont St., Boston, consult. engrs.

Okla., Shawnee—City, voted $170,000 bonds, sewage disposal plant, C. H. Guernsey & Co., 2711 N. Oklahoma St., Oklahoma City, consult. engrs. CD 11/16/50.

Tex., College Station—City, sanitary sewage treatment plant, $175,000, Homer A. Hunter, 4707 Greenville Ave., Dallas, consult. engr. CD 1/26.

Tex., Raymondville—City, $146,000 bond election Aug. 28, sanitary sewers, Sigler, Clark & Winston, Weslaco, consult. engrs.

BRIDGES

RHODE ISLAND—State Hy. Dpt., State House, Smith St., Providence,

Limerock—bridge, Wilbur Rd. Bridge, $175,000.

North Kingstown—Wickford Bridge, Boston Neck Rd., $70,000.

▲ **RHODE ISLAND**—State Hy. & Bridge Dpt., State House, Smith St., Providence,

Tiverton-Portsmouth—bridge and approaches, New Sakonnet River Bridge, constr. high level bridge across Sakonnet River with approaches in Tiverton and Portsmouth to replace Old Stone Bridge. $5,000,000. CD 2/3/47.

▲ **Washington**—State Hy. Dpt., Olympia,

Snohomish Co.—new bridges Primary State Hy. 1, between Everett and Stimsons' Crossing, $4,929,000. W. A. Bugge, state hy. dir.

▲ **Que., Montreal**—Municipality, bridges over Des Prairies River, Approx. $4,000,000. H. A. Gibeau, City Hall, engr.

STREETS AND ROADS

Kan., Olathe—Johnson Co., Mission Twp., Court House. 34 ft. road from Roe Ave. to US 50 to be called 53 St., laid on 60 ft. right of way and curb guttering and bit. surf.

Miss., Pascagoula—City, voted bonds, street imprvs., $275,000. CD 1/11.

N. Y., Caroline—Town, 16.1 mi. roads. $113,900.

N. Y., Fabius—Town, 19.8 mi. roads. $130,588.

N. Y., Genoa—Town, 19.5 mi. roads. $133,000.

N. Y., Groton—Town, 18.05 mi. roads. $136,020.

N. Y., Newfield—Town, 14.95 mi. roads. $130,100.

N. Y., Otisco—Town, 16.54 mi. roads. $111,668.

N. Y., Scipio—Town, 20.4 mi. roads. $138,600.

N. Y., Sterling—Town, 19.85 mi. roads. $131,500.

O., Dayton—City Comn., City Hall, improve E. First St. from Front to Springfield Sts., install storm sewers, $210,734. John Hale, city engr. CD 11/28/45.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,

Oklahoma Co.—access road on Grand Boulevard south of May Ave., $400,000. G. H. Bittle, c/o owner, engr.

Okla., Luther—Oklahoma Co., Court House, Oklahoma City, Zone 2, asph. paving on 6½ mi. roads south, $225,000, C. W. McFerron, Court House, engr

▲ **RHODE ISLAND**—State Hy. Dpt., State House Smith St., Providence,

Adamsville—hy., Stafford Rd., Bliss Corner to Adamsville. $353,300.

Ashton—hy., bridge, Washington Hy.-Massachusetts State line from Ashton Bridge over Blackstone River in Ashton to Massachusetts line, continue to Boston Post Rd. US 1 in North Attleboro. $1,700,000.

Burrillville—hy. Wallum Lake Rd., Bridgeton to Institutions. $162,000.

Centerville—hy., Centerville Rd. interchange. $790,000.

Coventry—hy. Harkney Hill Rd. $197,000.

Coventry-Crompton—hy. Noose Neck Hill Rd.-Quaker Lane, interstate route, eliminate hill and turn into the village of Crompton and Tiogue Reservoir Bathing Beach. $2,600,000.

Cranston—hy. Warwick Ave. Broad St. to Waite corner, $130,000.

Cumberland—hy. High St.-Abbott St. to Blackstone St., $125,000.

Exeter—hy., four bridges Nooseneck Hill Rd. at Baker Rd. in Exeter southerly to Connecticut line, bypassing small villages, 10 mi., $5,000,000.

Jamestown—hy. Eldred and Ocean Aves., $269,500.

North Providence—hy. Louisquisset Pike-New Route from point on Pike near Reservoir Ave. northerly to Massachusetts line and connect with Worcester route. $2,900,000.

hy. Louisquisset Pike southerly to some point in Providence near Orms St. to complete intercity route between Woonsocket and Providence, $4,000,000.

Pawtucket—hy. bridge recommended Rte. 5, bridging Blackstone River from point on Pawtucket Ave. and East Ave. to Broadway and Cottage St., continuation of above would sweep southerly and westerly thru city of Pawtucket to connect with Met Expressway of Providence Rte. 5. $5,225,000.

Potowamut—hy. Forge and Ives St. $220,000.

Providence—hy. bridge 1A expressway hy. for Met. Providence Fox Point Blvd. across Providence River incl. ramps to facilitate travel to Dyer-Eddy Sts. and Allen Ave., 18 Aborn St. to Brownell St., recommended Rte. 5. $5,100,000.

Providence—hy., 2 bridges Manton Ave. Olneyville Square to city line. $450,000.

hy. Narragansett Blvd. Providence line to Norwood Ave., $125,000.

Wakefield—hy. Tower Hill Rd. from Shady Lea to Wakefield village, $1,500,000.

Tex., Bay City—Town, $300,000 bond election Aug. 28, street imprvs., paving.

Tex., Dallas—City, wid'n. and asph. pave Lovers Lane with 6-lane Cotton Belt Ry. to Midway Rd., $445,000; complete Slarendon St. as 4-lane trafficway Corinth to Cockrell Hill, $256,000; wid'n. Elm St. to 6-lane Pearl to Preston asph., paving, $86,000; eliminate offsets and jogs in Peavy Rd. at Garland Harwood and Commerce Sts., $86,500; concrete curbs, gutters, Commerce, Continental Sts., industrial areas, $62,000; concrete curbs and gutters on Garland Rd., Buckner Blvd. to Jupiter Rd., $60,000, Koch & Fowler, 3900 Lemmon St., Dallas, consult. engrs. CD 12/1/48.

† **Tex., Fort Hood**—U. S. Eng., 606 Santa Fe Bldg., Galveston, 200,000 sq. yd. 4 in. concrete paving. $400,000. CD 7/12.

▲ **Washington**—State Hy. Dpt., Olympia,

Clark, Cowlitz and Lewis Counties—wid'n., Primary State Hy. 1, between Vancouver and Centralia. $7,000,000. W. A. Bugge, state hy. dir.

▲ **Washington**—State Hy. Dpt., Olympia,

Skagit Co.—wid'n., grading, paving, structures Primary State Hy. 1, Conway to junction with Chauckanut Dr., $5,322,490.

Snohomish Co.—grading, paving, wid'n., Primary State Hy. 1, Everett to Stimson's Crossing, $1,574,240.

Whatcom Co.—wid'n., grading, paving Primary State Hy. 1, Bellingham to Ferndale, $1,306,270. W. A. Bugge, state hy. dir.

EARTHWORK, WATERWAYS

Conn., Westport—Town, W. C. Crossman, first Selectman, river reclamation, 3 acres land behind Main St. stores for parking. Saugatuck River from Taylor Pl. to Imperial Ave. $200,000.

▲† **Texas**—Brazos River Conservation & Reclamation Dist., c/o R. D. Collins, mgr., Mineral Wells, Breckenridge Dam and hydro-electric power house; on Clear Fork of Brazos River, Proj. 41-P-1059, Haskell and Throckmorton Counties, $5,400,000; addnl. electric power units at De Cardova Dend Dam, Tex. 41-P-1060. Palo Pinto Co. $3,000,000; addnl. electric power units at Inspiration Point Dam, $2,550,000; addnl. electric power units at Possum Kingdom Dam, $3,750,000; Hightower Dam, hydro-electric power house and appurtenances on Brazos River in Hook and Parker Counties, Tex. 41-P-1047, $11,200,000, all foregoing near Mineral Wells; dam, hydro-electric power house and appurtenances on South Fork of Brazos River in Graham Young Co., Tex. 41-P-1058, $8,300,000. Ambursen Engineering Corp., 750 M & M Bldg., Houston, consult. engrs.

▲ **B. C., Waneta**—Consolidated Mining & Smelting Co. Ltd., Trail, dam on Pend Oreille River north of the U. S. A. and Canadian border, Approx. $2,000,000.

AIRPORTS

▲† **Colo., Denver**—AIR BASE IMPRVS.—U. S. Eng., 1709 Jackson St., Omaha, Neb., plans by Charles D. Strong, engr. and archt., 933 Sherman St., maintenance hangar, BOQ's and barracks, $4,150,000;

Wilson & Co., 1542 Colorado Blvd., Denver, consult. engrs., apron, taxiways, and maintenance docks, $1,400,000, Alfred J. Ryan, 1340 Glenarm Pl., consult. engr.; general utilities refueling and bulk storage facilities, $2,110,000, Rocky Mountain Eng. Co., 1441 Welton St., Denver, consult. engr., all above work at Lowry Air Force Base.

▲† **N. J., Atlantic City**—AIR STATION—Dpt. Navy, P. Wks. Office, Phila., Naval Base, Phila., Pa., plans by Carroll Grisdale & Van Alen, 204 W. Rittenhouse Square, Phila., Pa., Naval Air Station. $3,966,200.

▲† **Tex., Amarillo**—BUILDINGS—U. S. Eng., Box 61, Tulsa 2, Okla., plans by Wm. C. Townes, 1208 W. 10 St., air installation office, $350,000; heavy equip. storage bldgs., $550,000; office shops, $300,000; automotive shops, $375,000; hydrogen-oxygen storage bldg., $200,000; ordnance area structure, $400,000; inflamable storage bldg., $275,000 at Amarillo Air Force Base.

▲† **Tex., Austin**—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., plans by Kuehne, Brooks & Barr, 203 Perry Brooks Bldg., and Page, Southerland & Page, 602 West Ave., radio-ground control facilities, $100,000; addnl. refueling sys. exten., $250,000; addnl. night lighting sys., $175,000; communications facilities, $400,000; construct security roads, $100,000; WW, $100,000; natural gas sys., $75,000; sanitary sewers, $80,000; storm sewers, $75,000 for Bergstrom Air Force Base. Julian Montgomery, 604 West Ave., consult. engr.

† **Tex., Austin**—AIRPORT IMPRVS.—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Kuehne, Brooks & Barr, 121 E. B St., Austin, Page, Southerland & Page and Julian Montgomery, 602 W Aves., assoc. archts. and engrs., radio-air ground control, addnl. hydrant refueling, night lighting, communication facilities, security-roads, pass office, utilities at Bergstrom Air Force Base. CD 7/6.

† **Tex., Killeen**—AIRPORT BUILDINGS—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Forrest & Cotton, Tatum & Quade, archts. and engrs., 2812 Fairmount St., Dallas, barracks, $453,000; mess halls, $500,000; fueling syt., $90,000; runways and taxiways, $600,000; outside lighting sys., $75,000; WW., $50,000; sanitary sewers, $75,000; streets and roads, $100,000; area grading, open drainage, earthwork, $60,000 at Gray Air Force Base.

▲ **Tex., Laredo**—AIRPORT—City, runways, $4,000,000; drainage, $300,000; airfield lighting, $350,000; taxiways, $1,500,000 at municipal airport, Mitchell & Hunt and O. T. Lodal & Assoc., Transit Tower, San Antonio, consult. engrs. CD 8/14.

† **Wyo., Cheyenne**—WAREHOUSE, etc.—U. S. Eng., 1709 Jackson St., Omaha, Neb., plans by H. K. Assoc., Laramie, base supply warehouse, electric power and distr. sys., and outside utilities at Francis E. Warren Air Force Base, $750,000. CD 7/17.

LATIN AMERICA

▲ **Mexico**—Oaxaca State Government, Palacio del Estado, Oaxaca, Oax., Mexico, plans 95 mi. road, La-Costa-Huajuapan de Leon, $2,310,000.

▲ **Mexico**—Petroleos Mexicanso, Juarez 104, Mexico City, Mexico, plans 75 mi. oil pipe line Tabasco-Vera Cruz and Macuspapa-Minatitlan, $5,000,000.

Mexico—Union Nacional de Productores de Axucar (Natiaon Sugar Producers Union), Lic. Aaron Saenz, pres., Gante, 15, Mexico City, plans sugar mill building renovation. $11,560,000.

▲ **Mexico, Almejas**—Mexican Government Sria. de M. Mexico City, plans sea port, $1,500,000.

▲ **Mexico, Mexico City**—Scoiedad Diesel Nacional, V. Carranza, 25, Mexico City, plans diesel motors factory, $1,500,000.

▲ **Mexico, Tampico**—Petroleos Mexicanos Juarez, 104, Mexico City, plans high octane gasoline refinery, $6,000,000.

Mexico, Tuxtla Gutierrez—Mexican Government, Sria de R H. Paseo de La Reforma, 69, Mexico City, plans water works, $925,000.

PUBLIC BUILDINGS

† **Calif., Camp Stoneman**—LAUNDRY, etc.—U. S. Eng., 180 New Montgomery St., San Francisco, laundry and dry cleaning plant. $615,000.

Calif., Hanford—SCHOOL—Hanford City School Dist., 208 Cameron St., plans by David Horn & Marshall Mortland, 158 1244 O St., Fresno, Lincoln School. $315,000. CD 10/26/50.

Calif., Martinez—HALL OF RECORDS—Contra Costa Co., Hall of Records, 3 story Hall of Records addn. $300,000. CD 11/17/48.

Calif., Mill Valley—SCHOOL—Mill Valley Elementary School Dist., 360 E. Blithedale Ave., plans by Alfred W. Johnson, 681 Market St., San Francisco, Strawberry Elementary School, $300,000.

Calif., Palo Alto—SCHOOL—Palo Alto City Unified School Dist., P.O. Box 149, plans by Birge N. Clark & Walter Stromquist, 321 Channing Way, school, Maybelle Ave., south of Barron Park. $300,000. CD 4/5.

▲ **Ill., Highland Park**—GYMNASIUM—School Dist. 113, 300 Vine St., plans by Armstrong, Furst & Tilton, 11 S. La Salle St., Chicago, Zone 3, gymnasium, auditorium, pool, cafeteria. $1,800,000.

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▲ **Ind., Gary**—HOUSING—Gary Housing Auth., 400 Progress St., plans by Beine, Hall & Curran, 607 Broadway, 500-housing units, 21 and Mississippi Sts., $4,000,000. CD 7/3.

La., Leesville—SCHOOL—Vernon Parish School Bd., Leesville, plans by C. E. Ammen & Sol Rosenthal, 1029 Phillip St., New Orleans, school. $300,000.

Me., Bar Harbor—SCHOOL—Town, Bar Harbor Trustees, Bar Harbor School Dist., plans by Alonzo J. Harriman, Inc., 292 Court St., Auburn, steel frame school. $350,000. CD 8/1.

Mass., Cambridge—COURT HOUSE—Middlesex Co., East Cambridge Court House, Cambridge St., East Cambridge, new wing to court house, East Cambridge. $400,000. CD 6/26/45.

Mass., Fitchburg—SCHOOL—City, School Dpt., George Francis, supt., Elm St., B. F. Brown school addn. $300,000.

Mass., Needham—SCHOOL—Town, J. S. Slicer Jr., chn. School Bldg. Comn., plans by Hugh A. Stubbins, 103 Pleasant St., Lexington, 1 story school, $500,000.

Mass., South Easton—SCHOOL—Town, Horace H. Mitchell, chn. Bldg. Comn., Easton, plans by Haloeman & Jacoby, 153 Main St., Brockton, school. $400,000. CD 8/13.

† **Mich., Detroit**—ARMORY—Army Dpt., National Guard Bureau, brick, steel, concrete five unit armory, $350,000. CD 9/27/45.

▲† **Mich., Detroit**—ARSENAL—U. S. Eng., 2015 Cadillac Tower, brick, steel research bldg., Detroit Arsenal, $3,000,000. CD 9/27/45.

Mont., Billings—EDUCATIONAL—State Bd. Examiners, Helena, plans by J. G. Link & Co., Billings, education bldg. at Eastern Montana College of Education, $500,000. CD 3/23.

Mont., Bozeman—VETERINARY RESEARCH—State Bd. Educ., Helena, plans by J. G. Link & Co., Billings, veterinary research at State College. $400,000. CD 3/22.

Mont., Butte—SCIENCE, etc.—State Bd. Educ., Helena, plans by E. F. Moyle, Butte, science bldg., $300,000; plans by Van Teylingen, Knight & Van Teylingen, Great Falls, petroleum physics bldg., $300,000, both at Montana School of Mines. CD 3/22.

Mont., Missoula—MUSIC—State Bd. Educ., Helena, plans by Fox & Ballas, Missoula, music bldg. at University of Montana, $600,000. CD 3/22/51.

▲ **Neb., Omaha**—POWER PLANT—Omaha Public Power District, 17 and Harney Sts., power plant, $55,000,000. C. W. Minard, c/o owner, ch. engr.

N. J., Atlantic City—SCHOOL—Bd. Educ., 1809 Pacific St., plans by H. A. Stout & Son, Guaranty Trust Bldg., West Side Grammar School, $400,000. CD 1/16.

▲ **N. J., Port Newark**—WAREHOUSE—Port of New York Auth., 111 8 Ave., New York, 11, N. Y., 320x335 ft. warehouse for groceries, etc., 15 foot platforms on 3 sides. $1,257,000.

▲ **N. Y., New York**—LIBRARY, etc.—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, plans by John B. Peterkin, 36 W. 44 St., New York, 18, N. Y., 3 story, Westchester Square library and health center on Glebe Ave. and Overing St. $1,000,000. CD 2/28/45.

† **N. C., Fort Bragg**—HOUSING—U. S. Eng., 308 Customhouse, Wilmington, repairs to Honeycutt Housing Area, Eng 31-075-52-4, incl. 235 buildings.

▲ **O., Dayton**—SCHOOL—Bd. Educ., $12,000,000 bond election Nov. 6, five-year school bldg. expansion program, $13,300,000.

▲ **O., Dayton**—COURT HOUSE, etc.—Montgomery Co. Comn., Court House, $6,600,000 bond election Nov. 6, 3 story, bsmnt. juvenile court bldg. and 4 story court house, $7,600,000. Freeman Pretzinger, Reibold Bldg., Schenk & Williams, 3 National Bldg., and Lorenz & Williams, 223 W. 1 St., Dayton, O., archts. CD 11/28/45.

▲ **Tex., Dallas**—MEDICAL SCHOOL—Southwest Medical School of University of Texas, Admin. Bldg., Austin, plans by Mark Lemmon, 1210½ Main St., medical school, $4,000,000. CD 8/17/49.

▲ **Tex., Edinburg**—COURT HOUSE—Hidalgo County, voted $1,500,000 bonds Aug. 11, masonry 70,000 sq. ft. court house. R. Newell Waters, Edinburg, archt. CD 7/28.

† **Tex., Fort Hood**—FACILITIES—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Wyatt C. Hedrick, First National Bank Bldg., Fort Worth, supplemental operational facilities at Fort Hood. CD 7/12.

† **Tex., Fort Hood**—SHOP—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Wyatt C. Hedrick, First National Bank Bldg., Fort Worth, repair shop, $300,000. CD 7/12.

▲ **Tex., Houston**—PLANT—Brown & Root, Inc., Box 3, Houston, army tank rebuilding plant imprvs. and expansion, north of Gulf Freeway off Calhoun Rd., shop expansion, $500,000, retooling, $2,000,000.

Wis., Chippewa Falls—EMPLOYEES—State Dpt. P. Welfare, Madison, plans by R. C. Kirchhoff, state archt., Madison, employee's bldg. at Northern Colony and Training School. $375,000.

Wis., Delavan—DORMITORY—State Dpt. Welfare, Madison, plans by Roger C. Kirchoff, state archt. Madison, dormitory at Wisconsin School for Deaf, $375,000.

Wis., Janesville—DORMITORY—State Dpt. P. Welfare, Madison, plans by Roger C. Kirchhoff, state archt., Madison, dormitory at Wisconsin School for Visually Handicapped $375,000.

▲ **Wis., Madison**—DIAGNOSTIC CENTER—State Dpt. Welfare, Madison, Roger C. Kirchhoff, state archt., diagnostic center. $1,200,000.

Wis., Union Grove—SCHOOL—State Dpt. P. Welfare, Madison, plans by Roger C. Kirchhoff, state archt., Madison, school at Southern Colony and Training School, $300,000. CD 3/6/44.

▲ **Wis., Waupun**—HOSPITAL, etc.—State Dpt. Welfare, Madison, Roger C. Kirchhoff, state archt., hospital and patient bldg. at Central State Hospital, $2,300,000.

▲**Alta., Grand Rapids**—POWER PLANT—Alberta Power Comn., Terrace Bldg., Edmonton, power plant development on Lessor Slave River, approx. $2,000,000. B. Russell, dir. Water Resources Branch, Edmonton, engr.

▲ **Ont., Sarnia**—HOUSING—City, W. C. Nelson, mayor, Sarnia, 200 housing units. Approx. $1,500,000. S. M. Connolly, c/o C. M. & H. Corp., 441 Queens Quay W. Toronto 2B, Ont., engr. CD 3/29/45.

▲ **Ont., Smith Falls**—HOSPITAL—Ontario Dpt. Health, Parliament Bldgs., Toronto, Dpt. Health & Welfare, Jackson Bldg., Ottawa, 2 400-bed hospital for mentally deficient children. $5,000,000. CD 2/5/47.

COMMERCIAL BUILDINGS

Calif., Merced—DWELLINGS—McNamara & Co., 1719 M St., plans by Robert R. Jones, 1723 M St., 50 dwelling units, on 8 acre site, Gerard Ave. and Brimmer Rd. $500,000.

Kan., Kansas City—CHURCH, etc.—Consolidated Baptist Building Com., 1135 Minnesota Ave., Kansas City 1, Kan., plans by Froese, Maack & Becker, 705 Olive St., St. Louis, Mo., and O'Bryan, Wilson & Earnheart, 1135 Minnesota Ave., Zone 1, church edifice and 3 story education unit, on 3 acre site, 29 and Minnesota Aves. $450,000. CD 6/30/50.

▲ **Md., Bainbridge**—HOUSING—Dpt. Navy, Fifth Naval Base, Norfolk, Va., construct, manage, finance housing at Bainbridge Naval Training Center, $8,750,000.

▲ **Md., Camp Detrick**—HOUSING—U. S. Eng., First and Douglas Sts. N.W., Wash., D. C., construct, manage, finance two hundred and twenty-five 1 and 2 story housing, $1,800,000, Mills & Petticord & Assoc., 3308 14 St. N.W., Wash., D. C., archts. CD 4/6.

▲ **Md., Essex**—RESIDENCES—A. J. Watkins & Son, Inc., 202 E. 25 St., Baltimore, plans by Cyril H. Hebrank, 20 E. Lexington St., Baltimore, sixty 2 story, bsmnt., 16x30 ft. residences, Wilshire Rd., $600,000; one hundred 1½ story, 26x30 ft. residences, South Marlyn Ave., $800,000.

▲ **Md., Lansdowne (Br. Baltimore)**—APARTMENT—Mardo Homes, Inc., 2 W. University Parkway, Baltimore, plans by Alexander S. Cochran, 411 N. Charles St., Baltimore, nine hundred suites, 2 story garden type apartment, 3 Ave. and Hollis Ferry Rd., $6,000,000.

▲ **O., Columbus**—HOUSING—Central Ohio Technical Foundation, c/o Charles F. Lucks, 1229 Holly Ave., housing facility for local sections of 22 technical, scientific and engineering societies. $2,000,000.

Pa., Paoli—RESIDENTIAL DEVELOPMENT—Clarence S. Staats, Jr., King and Sugartown Sts., Malvern, residential development, Cedar Hollow Rd., etc. $800,000.

Tex., Dallas—OFFICE—S. H. Lynch & Co., 2101 Pacific Ave., office. $638,250.

▲ **Tex., Freeport**—DWELLINGS—Texas Real Estate & Constr. Corp., c/o Andrew Urban, Jr., 1539 Nevada St., Houston, 200 dwellings, on 30 acre tract in Deer Park. $1,600,000.

▲ **Tex., Houston**—DWELLINGS—Brace & Carruth, 706 Garden Oaks, plans by P. Herbert Caldwell, 4122 Glenbrook Court, 115 masonry dwellings, south of W. 11 St. $1,650,000.

▲ **Tex., Houston**—SHOPPING CENTER—Brace & Carruth, 706 Garden Oaks St., plans by P. Herbert Caldwell, 4122 Glenbrook Court, shopping center, $4,000,000. CD 2/2.

▲ **Tex., Houston**—HOME—Buckner's Orphanage, c/o Rob. Buckner, U.S. Hy. 80, Dallas, home for retired preachers. $1,000,000.

▲ **Wash., Seattle**—BUILDING—Pacific Telephone & Telegraph Co., 3 and Seneca Sts., Zone 1, 2 story, part bsmnt. bldg. to house accounting depts. Terry Ave. near Stewart St. $1,200,000.

Wis., Milwaukee—APARTMENT—Northwest Properties, c/o E. M. Wanecek, 783 N. Water St., Zone 2, plans by A. H. Siewert, 2716 W. North Ave., Zone 8, 16-unit, 9 story, bsmnt., 70x80 ft., rein.-con., brick apartment. Approx. $500,000.

▲ **Ont., Toronto**—OFFICE—Independent Order of Foresters, Temple Bldg., plans by Marani & Morris, 1250 Bay St., 6 story, head-office with staff house, connected by underground tunnel, at Jarvis and Charles Sts. $2,700,000. CD 5/19/50.

INDUSTRIAL BUILDINGS

▲ **Ala., Andalusia**—PLANT—Gulf Naval Stores Co., Gulfport, Miss., new plant, $1,700,000. Louis Latimer c/o owner, engr.

▲ **Ark., Crossett**—PLANT—Crossett Lumber Co., Crossett, Ark., kraft paper facility, $1,165,692.

▲ **Calif., Richmond**—PLANT—Standard Oil Co. of California, 225 Bush St., San Francisco, plant for production of detergent alkane. $1,500,000.

▲ **Conn., Thompsonville**—PLANT—Connecticut Light & Power Co., 250 Freight St., Waterbury, gas turbine plant. $2,250,000. United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa., consult. engr.

Del., Wilmington—WAREHOUSE, etc.—Owner, c/o James F. Pierce, archt., Colonial Farms, Avondale, warehouse and office. $900,000.

▲ **Ga., Bolton**—MILL—Atlanta Paper Co., 950 W. Marietta St., Atlanta, paper board mill, $2,000,000.

Ill., Bedford Park—FACTORY—Personal Products Corp., 6425 W. 65 St., Chicago, plans by J. C. Cromelin, 6455 S. Central St., Chicago Zone 38, 70,000 sq. ft. factory. $600,000.

▲ **Ill., Galesburg**—PLANT—Admiral Radio Corp., 3800 W. Cortland St., Chicago, 120,000 sq. ft. plant addn. $1,000,000.

▲ **Ill., Robinson**—REFINERY—Ohio Oil Co., Findlay, O., oil refinery addns. to increase capacity from 30,000 bbl. to 40,000 bbl. per day. $7,000,000.

▲ **Ind., Lafayette**—PLANT—Fairfield Mfg. Co., brick, steel plant, $2,500,000.

Ind., Mishawaka—BOILER HOUSE—Mishawaka Rubber & Woolen Co., N. Main St., 6 story, 31x180 ft., brick, rein.-con. structural steel, boiler house $615,000. F. A. Boddy, 2210 Park St., Detroit, Mich., consult. engr.

▲ **La., Baldwin**—PLANT—Gulf Public Service Co., New Iberia, La., steam-turbine electric generating plant, $3,500,000.

▲ **Mass., Newton** — WAREHOUSE — Jordon Marsh Co., 450 Washington St., Boston, 2 story, 480x770 ft., rein.-con., steel 600,000 sq. ft. warehouse, 275 Grove St. $3,600,000, Maurice A. Reidy, 101 Tremont St., Boston, consult. engr.

O., Marietta—SERVICE and LOCKER—Electro Metallurgical Co., 137 47 St., Niagara Falls, N. Y., 2 story, bsmnt., 50x218 ft., concrete, steel service and locker bldg., 6 mi. south of here. $750,000. J. Fruchtbaum, Jackson Bldg., Buffalo, N. Y., consult. engr.

▲ **Pa., Bristol**—PLANT—Kaiser Mfg. Co., Bristol, mfg. plant, expansion for construction airplane wings. $1,000,000.

▲ **Pa., Phila.**—PLANT—The Evening Bulletin, Filbert and Juniper Sts., plans by George Howe & Robert Montgomery, 1728 Spruce St., newspaper publishing plant. $5,000,000. William H. Gravell, 1700 Walnut St., consult. engr. CD 12/13/50.

Tex., Baytown—PLANT—Humble Oil & Refining Co., Humble Bldg., Houston, plans by Milton McGinty, 2424 Ralph St., Houston, masonry 25,000 sq. ft. plant unit. $700,000. CD 2/19/48.

Wash., Seattle—PLANT—Monsanto Chemical Co., 1700 S. 2 St., St. Louis, Mo., plans by B. Woo, 1635 34 Ave., Seattle, plant to produce semi-refined vanillion from lignin. $500,000. Engineering Associates, Polson Bldg., Zone 4, Wash., consult. engr. CD 4/4.

▲ **Wis., Milwaukee**—WAREHOUSE—A & P Food Stores, 322 E. Michigan St., Zone 3, 500,000 sq. ft. warehouse, Approx. $3,000,000.

▲ **Newfoundland, St. John's**—MILLS—United Cotton Mills Ltd., St. John's, 3 textile mills. $4,000,000.

UNCLASSIFIED

Kansas—TELEPHONE SYSTEM—United Telephone Assoc., Dodge City, exten., imprv. telephone sys. in Ford, Finney, Gray, Clark and Hodgeman Counties. $763,000.

Minnesota — TELEPHONE SERVICE — Marshall County Telephone Co., 530 Syndicate Bldg., Minneapolis, operated by Minnesota Telephone Co., 30 Syndicate Bldg., imprv., extend telephone service, constr. 180 mi. new lines, rebuild 506 mi. existing lines, in Kittson, Marshall and part of Roseau Counties. $982,000.

▲ **Pa., Phila.**—ORE PIER—Pennsylvania R. R., L. C. Strubel, ch. engr., 30 and Market Sts., Phila., Pa. ore pier, S. Delaware Ave. $8,000,000.

South Dakota—DISTRIBUTION LINES—Northern Electric Co-operative, Aberdeen, 188 mi. distr. lines, 25 mi. tie lines, Brown Co. $231,000. Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, Ia., consult. engrs. CD 7/28/49.

† **Tex., Amarillo**—FIRE ALARM SYSTEM—U. S. Atomic Energy Comn., Los Alamos, N. M., plans by Silas Mason Co., Pantex Plant, fire alarm sys., with 20 manually operated fire alarm boxes on standards, 12 manually operated fire alarm boxes with aux. attach for auto operation from remote points by means of auto detectors or sprinkler sys., approx. 15,000 ft. conduit, 11,000 ft., which will be underground, master control cabinet for control sys., Inv. 291-52-15. Approx. $100,000. R. B. Jewell or D. S. Waddy, c/o owner, engr.

Tex., Victoria—POWER LINES—Central Power & Light Co., 120 N. Chaparral St., Corpus Christie, overhead power lines. $100,000.

Vt., Swanton-Highgate Falls—ELECTRIC SYSTEM—Village of Swanton, municipal electric system imprvs., and addns., $842,000. Chas. T. Main, Inc., 80 Federal St., Boston, Mass., consult. engr.

▲ **Wyoming and Utah**—OIL PIPE LINE—Sinclair Pipe Line Co., Casper, Wyo., 124 mi. 8 in. oil products pipe line from Sinclair, Wyo., to Salt Lake City, Utah. $1,488,000.

▲ **Que., Montreal**—ELECTRICAL CONDUITS SYSTEM—Municipality underground electrical conduits system extens. $5,000,000. H. A. Gibeau, City Hall, city engr.

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 4, Massachusetts

BIDS ASKED—BUILDINGS

▲ **Mass., Everett**—HOUSING—B.A. 9/7—Everett Housing Auth., 48 E. Elm St., 125 housing units, Coburn Estate, $1,200,000, Drummey & Duffill, 80 Boylston St., Boston, archts. CD 8/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—State Hy. Comn., State House, Augusta, **J. R. Cianchette,** Pittsfield, Me. CA **$1,293,045.** hy. bit. macad. grav. surf., Caribou-Limestone. CD 8/13, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Metropolitan Dist. Comn., 20 Somerset St., Boston, **A. V. Taurasi Co., Inc.,** 139 Jacques St., Somerville, Mass. CA **$2,825,638.** Overpass and traffic interchange Forest Hills, Suffolk Co. Awarded Aug. 17. CD 8/8, under LB.

White Oak Excav Inc., 61 E. Main St., Plainville, Conn., LB, **$745,803,** Contract 209A masonry filters and regulator house, filtration plant, West Hartford, HARTFORD, CONN. Bd Contract & Supply, Metropolitan Dist., 115 Boad St., Hartford, Conn. Bids Aug. 16. CD 7/20.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Geo. A. Fuller Co.,** 11 Beacon St., Boston, Mass. LB **$1,000,000.** masonry BANK, LEWISTON, ME. Manufacturers National Bank, Lewiston, Me. Cram & Ferguson, 248 Boylston St., Boston, Mass., archts. CD 12/1/49.

Neri Constr. Co., 131 N. Main St., Millbury, Mass. CA **$763,237.** Senior High SCHOOL, MILLBURY, MASS. Town, School Bldg. Comn., Millbury, Mass. CD 7/30 under LB.

Olson & Appleby, 222 Union St., New Bedford, Mass. CA **$595,277.** Vocational high SCHOOL, NEW BEDFORD, MASS. City, Supt. Bldgs., 307 Municipal Bldg., New Bedford, Mass. CD 8/8, under LB.

Tornabene Bros. Co., 372 Langley Rd., Newton, Mass. CA **$781,338.** Claflin Elementary SCHOOL, 495 Lowell Ave., NEWTONVILLE, MASS. City, Pub. Bldg. Comn., City Hall, Newton, Mass. CD 8/8 under LB.

▲ **Grande & Son,** 425 A Broadway, Everett, Mass. LB **$1,086,644.** H-203, Contr. 2, new out patient X-ray LABORATORY, NORFOLK, MASS. State Dpt. Pub. Health, State House, Boston, Mass. Bids Aug. 15. CD 7/30.

Park Constr. Co., 40 Court St., Boston, Mass. LB **$517,000.** trade SCHOOL and high SCHOOL addn., QUINCY, MASS. City, Supt. Schools, 52 Coddington St., Quincy, Mass. Bids Aug. 15. CD 7/31.

▲ **John Capbianco,** 44 School St., Boston, Mass. LB **$1,685,000.** est. $1,800,000. Chandler Street Junior High SCHOOL, WORCESTER, MASS. City, School Dpt., City Hall, Worcester, Mass. Bids Aug. 16. CD 7/25.

▲ **E. Turgeon Constr. Co., Inc.,** 42 Weybosset St., Providence, R. I., LB. **$1,300,000.** TEMPLE, school, social hall tunnels, corner Orchard and Butlers Aves., PROVIDENCE, R. I. Temple Beth El, 688 Broad St., Providence, R. I. Bids Aug. 15. CD 7/18.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
September 7, Pennsylvania
STREETS AND ROADS
September 4, Maryland September 7, Pennsylvania
September 11, New Jersey

Md., Towson—B.A. 9/5—Comrs., Baltimore Co., Court House, Contr. 245-W, approx. 18,067 lin. ft. 6 to 12 in. c.e. pipe, appurtenances, 108 lin. ft. 48 in. RCCP X jacked in place. Plans deposit $5. Chas. B. Wheeler, Court House, ch. engr. CD 1/26/44.

BIDS ASKED—BUILDINGS

▲ **N. Y., Brooklyn**—SCHOOL—B.A. 9/11—Bd. Educ., 49 Flatbush Ave. Exten., Brooklyn, 1, N. Y., P. S. 255 on Avenue "S" between E. 16 and E. 17 Sts., $1,525,000. CD 9/8/48.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, N. J.

Cayuga Foundation Corp., 30 Vesey St., New York, N. Y., CA, est. cost, **$1,236,576,** constr. Route 26 Extension Sect., 2B, (Trenton Freeway) from Perry St. to Pennsylvania R. R. Belvidere and Delaware Branch) incl. bridges retaining walls and grading Mercer Co. Bids Aug. 2 awarded Aug. 21. CD 8/7, under LB.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Charles Balazick, Jefferson, Pa., CA, **$507,845,** wid'n., 29,875 ft. hy. with c. conc. and crushed aggregate base and bit. T.R. 601; 53, Boswell Boro, Jenner, Conemaugh and Upper Yoder Twp., Somerset and Cambria Counties. Bids Aug. 3, awarded Aug. 16. CD 8/7, under LB.

▲ **PENNSYLVANIA**—State Hy. and Bridge Auth., 506 N. Office Bldg., Harrisburg,

Conduit & Foundation Co., 770 S. Schuylkill Ave., Phila., Pa., CA, **$4,727,984,** 11,321 ft. divided roadway with c. conc. incl. 4 bridges, L.R. 769 (2B), Section of Schuylkill Expressway, Lower Merion Twp., Montgomery Co. Bids July 27, awarded Aug. 16. CD 8/1, under LB. (**Correction**—owner).

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Middlecreek Const. Co., Middleburg, Pa., LB. $279,919, crushed stone base and bit. surf. roadway 13,888 ft. T.R. U.S. 209, Dauphin Co.

James J. Skelly Co., Media, Pa., LB. **$96,299,** crushed aggregate base and bit. surf. roadway 5,745 ft., T.R. 391, Delaware Co.

C. S. Yoder, 4 Wine St., Uniontown, Pa., LB. **$360,869,** wid'n. and build up of 25,756 ft. roadway with crushed aggregate base and surf. new base and existing pavement with bit. surf., I-beam bridge, L. R. 26100-(S-1), Fayette Co.

David Goldberg & Sons, Pennsylvania Ave., Uniontown, Pa. LB. **$65,192.** construct 745 ft. rein.-con. pavement and construct I-beam superstructure on existing abutments. L.R. 26169, Fayette Co.

H. N. McNutt, Box 415, East Rainelle, W. Va., LB. **$299,266.** construct 9,456 ft. roadway with crushed aggregate base and bit. surf., rein.-con. bridge T.R. 219, Somerset Co.

Keelor Constr. Co., Perkiomenville, Pa., LB. **$723,561.** construct 46,303 ft. roadway with crushed aggregate base and bit. surf., incl. I-beam bridge, T.R. 92, Susquehanna Co.

Allegheny Asphalt and Paving Co., 801 Bingham St., Pittsburgh 3, Pa., LB. **$511,359.** construct 26,784 wid'n. with crushed aggregate base and bit. surf. new and existing pavement, construct three I-beam bridges T.R. 69, Warren Co.

John E. Boyer, George Washington Hotel, Washington, Pa., LB. **$93,705,** wid'n. 7,404 ft. roadway with rein.-con. pavement and other repairs L.R. 802 (S-1). Washington Co.

Rupp Bros., Box 230, Kittanning, Pa., LB. **$144,895,** construct 8,911 ft. roadway with crushed aggregate base and bit. surf. and wid'n. T.R. 68, Butler Co.

received no bids Aug. 17, construct 5,451 ft. plain c. conc. base and bit. surf. new and existing pavement, T. R. 18, 930, Beaver Co. Will re-advertise. CD 7/25. 8/3.

▲ **Arundel Corp.,** Pier 2, Pratt St., Baltimore, Md. CA **$4,476,018.** Complete concrete gravity type Liberty Dam and appurtenances, concrete gate house intake tower, etc. located approx. 1½ mi. upstream for the dam entrance to existing 10 ft. raw water tunnel to Montibello Filtration Plants, Patapsco River, North Branch, northeast of Marriottsville, BALTIMORE, MD. City, Bureau Water Supply, 503 Municipal Bldg., Baltimore 2, Md. CD 8/14, under LB.

Square Constr. Co., 115 S. Haven St., Baltimore, Md. CA **$729,610.** 13,500 ft. 48 in. precast water main, appurtenances, from end of existing main in Mt. Royal Terrace at Lake Dr., along Mt. Royal Terrace, Mt. Royal, Lafayette, Argyle and Harlem Aves. and Dolphin, Schroeder, Lexington and Poppleton Sts. to north bldg. line of Hollins St., BALTIMORE, MD. City, Bureau Water Supply, 503 Municipal Bldg., Baltimore 2, MD. CD 7/26, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Berkeley Imperial Homes, c/o S. Walter Katz, archt., 527 Fifth Ave., New York, 17, N. Y., Owner Builds. $800,000, 54 one-family HOUSES on tract bounded by Northern Blvd., 218 St., Springfield Blvd. and 46 Ave., BAYSIDE, N. Y.

Galletta Homes, c/o Mal Pinizotto, archt., 24-05 37 Ave., Long Island City, N. Y., Owner Builds, **$500,000.** 38 one-family HOUSES on 47 Ave. between Bell Blvd. and 212 St., BAYSIDE, N. Y.

Kent Homes, c/o John Burton & Assocs., 163-18 Jamaica Ave., Jamaica, N. Y., Owner Builds, **$500,000,** 33 one-family HOUSES on Cloverdale Ave., BAYSIDE, N.Y.

Horn Constr. Co., Inc., 2174 Hemlett Ave., Merrick, L. I., CA, **$517,239,** foundations for Cooper Park HOUSES (Proj. NY 5-23) in area bounded generally by Kingsland Ave., Frost St., Morgan Ave., Jackson St., Debevois Ave., Maspeth Ave., but excluding strip approx. 80 ft. w'de on north of Maspeth Ave. in Boro of Brooklyn, BROOKLYN, N. Y. New York City Housing Auth., 63 Park Row, New York, 38, N. Y. Bids June 20. CD 6/25, under LB.

▲ **O'Driscoll Constr. Co.,** 347 Madison Ave., New York, 17, N. Y., CA, **$4,000,000,** 2 story, OFFICE and other structure on 60-acre tract Old County Rd., HICKSVILLE, N. Y. Long Island Lighting Co., 250 Old Country Rd., Mineola, N. Y. Bids CD 6/31.

▲ **Turner Constr. Co.,** 420 Lexington Ave., New York, 17, N. Y., CA, **$3,000,000,** 3 story watch assembly PLANT on 24 acre site bounded by Astoria Blvd. south, 77 St., 25 Ave. and Brooklyn-Queens Expressway, JACKSON HEIGHTS, N. Y. Bulova Watch Co., Inc., 62-10-Woodside Ave., Woodside, N. Y. Alexander D. Crosett, 27 William St., New York, 5, N. Y., engr. Embury & Lucas, 150 E. 61 St., New York, 21, N. Y., consult. archts. CD 2/23.

▲ **Mansfield Builders Inc.,** c/o Alwin Cassens, Jr., archt., 116-55 Queens Blvd., Forest Hills, N. Y., Owner Builds. **$2,000,000,** 189 one-family HOUSES on tract on Hudson St., SEAFORD, N. Y.

▲ **Bethpage Park Estates** c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y., Owner Builds, **$2,500,000,** 154 one-family HOUSES on 35 acre tract at Hempstead Turnpike and Elm Dr., WEST FARMINGDALE, N. Y.

▲ **Cedar Falls Homes,** c/o Erwin Gerber, archt., 1180 Raymond Blvd., Newark, N. J., Owner Builds, **$3,500,000.** 400 one family HOUSES on 100-acre tract on Route 23 and Montclair Ave., CEDAR GROVE-LITTLE FALLS, N. J.

▲ **Orchard Heights Homes,** c/o George Boylan, archt., 110 Magnolia St., Highland Park, N. J., Owner Builds, **$3,000,000,** 300 one family HOUSES on Milltown Rd., off Hy. S-28, EAST BRUNSWICK, N. J.

Chas. B. Hembling & Son, 107 Monmouth St., Red Bank, N. J. LB, **$704,637,** general contract, Senile BUILDING, at N. J. State Hospital, MARLBORO, N. J. Dpt. Institutions and Agencies State House, Trenton, N. J. Bids Aug. 21, CD 8/3.

▲ **Fred J. Brotherton Inc.,** 185 Atlantic Ave., Hackensack, N. J., CA, **$1,500,000,** Overlook HOSPITAL addn., SUMMIT, N. J. Overlook Hospital, Summit, N. J. Bids July 17. CD 8/7, under LB.

Alger-Rau, Inc., 17024 Miles Ave., Cleveland, O., LB $574,967, general contract, secondary SCHOOL for Cambridge Springs Joint School Dist., CAMBRIDGE SPRINGS, PA. Public School Bldg. Auth., 1400 N. Cameron St., Harrisburg, Pa. Bids Aug. 16. CD 7/27.

Penn Valley Constructors Inc., 20 N. Pennsylvania Ave., Morrisville, Pa., Owner Builds, **$840,000.** 105 colonial and ranch-house type HOMES on 40-acre tract on Langhorne-Newtown and Langhorne-Yardley Roads, MIDDLETOWN, PA. William H. Ribers, 326 Hillcrest Ave., Morrisville, archts.

Henry Busse Co., 112 Wabash Ave., Pittsburgh, Pa., LB **$742,900,** est. $1,500,000, 1 story, T-shaped, steel frame, brick, concrete HOSPITAL, MT. LEBANON, PA. St. Clair Memorial Hospital, Mt. Lebanon, Pa. Bids Aug. 13. CD 7/19.

▲ **Branna Constr. Co.,** Bessemer Bldg., Pittsburgh, Pa., LB, approx. **$1,100,000,** 12 story, bsmnt., 50x141 ft., NURSES HOME, PITTSBURGH, PA. Montefiore Hospital Assn, 3459 Fifth Ave., Pittsburgh, Pa. Bids Aug. 9. CD 8/1.

▲ **John McShain, Inc.,** 17 and Spring Garden Sts., Philadelphia, Pa. CA **$9,160,000.** constr. and rehabilitation of BUILDINGS, Camp Ritchie, CASCADE, MD. U. S. Eng., First and Douglas Sts., N. W., Wash., D. C. CD 8/22, under LB.

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▲ **William F. Sutter, Nesccpeck, Pa.** CA $1,678,460. high SCHOOL, SALISBURY, MD. Wicomico Co. School Comrs., Salisbury, Md. Malone & Williams, Salisbury, Md., archts., Crout Snyder & Crandall, American National Bldg., Baltimore, Md., engrs. CD 8/30/48.

SOUTH

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 5, Louisiana

† **Louisiana**—B.A. 9/6—U. S. Eng., Foot Prytania St., New Orleans 9, La., 180,000 cu. yds. earthwork and 1,214 lin. ft. highway relocation on Mississippi River levees, Inv. 52-17, Iverville Parish. CD 6/26/46.

† **LOUISIANA**—B.A. 9/6—U. S. Eng., Foot of Prytania St., new Orleans, 955,000 cu. yd. earthwork on left descending bank of Black River, Inv. 52-19. CD 6/26/46.

La., New Orleans—WHARF FOUNDATIONS—B.A. 9/6—Port of New Orleans Comrs., 2 Canal St., concrete fdns. on timber piling, concrete framing and deck for Napoleon Ave. Wharf. Plans deposit $25. CD 7/19.

La., Port Barre—B.A. 9/6—Village, 10,020 lin. ft. 6 and 8 in. water main, drill well. Plans doposit $16, Paul J. Mayne, Box 293, Opelousas, engr.

† **Ala., Huntsville**—AMMUNITION LOADING DOCKS—B. A. 9/7—U. S. Eng., P. O. Box 1179, Mobile 7, Ala., ammunition loading docks at Redstone Arsenal.

† **La., New Orleans**—B.A. 9/10—Orleans Levee Dist., Civil Courts Bldg., 1,560 lin. ft. bulkhead and wing walls at Lincoln Beach on Lake Pontchartrain.

BIDS ASKED—BUILDINGS

Miss., Hattiesburg—STADIUM-DORMITORY—B.A. 9/6—State Building Comn., Jackson, stadium-dormitory at Mississippi Southern College. $350,000. Landry & Matthes, 214 W. Pine St., archts. CD 4/16 under LB.

Miss., Meridian—SERVICE bldg.—B.A. 9/6—State Building Comn., Jackson, repairs and alterations to service bldg. at East Mississippi State Hospital. CD 8/16 under LB.

Tenn., Memphis—LIBRARY, etc.—B.A. 9/6—State of Tennessee, Nashville, library-administration bldg. addns. at Memphis State College. $415,000. Eason Anthony, McKennie & Cox, Inc., Sterick Bldg., archt.

W. Va., Romney—SCHOOL—B.A. 9/6—State Bd. Educ., Charleston, 2 story U-shaped, steel frame, brick, stone School for Deaf and Blind, $450,000. L. D. Schmidt, 309 Cleveland, Fairmont, W. Va., archt. CD 2/8/46.

Tenn., Memphis — LIBRARY — B.A. 9/7 — Southwestern University, c/o Walk C. Jones and Walk C. Jones Jr., archts., 1215 Poplar Ave., Memphis, steel, concrete Burrow Library, $600,000. CD 12.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

Lee Constr. Co., 422 S. Church St., Charlotte, N. C. LB $716,000. general constr. WW imprvs., SHELBY, N. C. City, Shelby, N. C. Bids Aug. 10.

† **L. E. W. Corp.**, 3850 N. W. N. River Dr., Miami, Fla., LB. $591,418, roads and parking areas at Pine castle Air Force Base ORLANDO, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Aug. 8. CD 7/19.

▲ **Delta Engineering Corp.**, 2121 San Felipe Rd., Houston, Tex. CA $425,000. crude oil pumping station, Haynesville, La.; CA $375,000. crude oil pumping station, Mayersville, Miss.; CA $350,000. crude oil pumping station, Abbeville, Miss.; † **Ray McDermott & Co.**, Harvey, La. CA $289,000. repairing of pipe line, duel-crossing on Mississippi River and laying 20 in. crossing line, Mayersville, Miss. Grand total, $1,439,000. LOUISIANA AND MISSISSIPPI. Mid-Valley Pipe Line Co., Longview, Tex.

BUILDINGS
LOW BIDS AND CONTRACTS

Carter-Hassell Contg. Co., Waco and Naval Base Rd., Norfolk, Va. LB. $845,000. construct Roberts Park SCHOOL, NORFOLK, VA. City, City Hall, Norfolk, Va., Vernon A. Moore, 716 W. 20 St., Norfolk, Va., archt.

▲† **Grannis, Sloane & Thompson & Street**, Pineville Rd., Charlotte, N. C., LB, $2,643,000, 360,000 sq. ft. COVERED STORAGE at Marine Corps., Spec. 26829, PORTSMOUTH, VA. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, 11, Va. Bids Aug. 14. CD 7/19.

▲ **Barger Bros.**, Mooresville, N. C., CA, $1,744,400, 250-bed HOSPITAL, ASHEVILLE, N. C. Memorial Mission Hospital of Western North Carolina Pease House, Victoria Hospital Asheville, N. C. Bids Aug. 9. CD 8/15, under LB.

Associated Builders & Contractors, 2 Clayton St., Montgomery, Ala., CA, $593,000, construct, finance, manage, 96-unit military HOUSING project at WHITING FIELD, FLA. P. Wks. Office, Box 365, Charleston, S. C. Bids Aug. 9. CD 8/17, under LB.

▲ **Thompson & Street Co.**, Pineville Rd., Charlotte, N. C. CA $1,612,000. HOSPITAL bldg. 5016, WINSTON-SALEM, N. C. North Carolina Baptist Hospital, c/o Schmidt, Garden & Erickson, archts., 104 S. Michigan 3, Ill. CD 7/19 under LB.

Vulcan Housing Corp., 207 S. 18 St., Birmingham, Ala., Owner Builds, $600,000, 75 HOMES, HUNTSVILLE, ALA.

▲ **Quaker Valley Constr. Co.**, P.O. Box 604, Pittsburg, Kan. CA $15,000,000. est. chemical PLANT, VICKSBURG, MISS. Spencer Chemical Co., Pittsburg, Kan. CD 7/24.

▲ **United Carbon Co.**, United Carbon Bldg., Charleston, W. Va. Owner Builds. $2,000,000. carbon PLANT, LOUISA, LA.

J. D. Jennings Corp., Lee St., Louisville 8, Ky. CA $772,000. est. $800,000. 8 story, rein.-con. FACTORY WAREHOUSE, LOUISVILLE, KY. Stratton & Terstegge Co., 15 and Main Sts., Louisville, Ky. Bids Aug. 2. Awarded Aug. 15. CD 7/26.

Brice Building Co., 1021 2 Ave. N., Birmingham, Ala., CA., $930,000. sandstone, steel DORMITORY, MEMPHIS, TENN. University of The South, Sewanee Bldg., Memphis, Tenn. Bids Aug. 1. CD 7/5.

MIDDLE WEST

STATE HIGHWAY LETTINGS
BRIDGES
September 4, Wisconsin
STREETS AND ROADS
September 4, Wisconsin

† **Michigan**—B. A. 9/4—U. S. Eng., 2015 Cadillac Tower, Detroit, fabrication, installation steel gate valve, St. Mary's Falls, CIVENG 20-064-52-9.

Mich., Coldwater—UTILITIES—B.A. 9/5—State, A. N. Langius, Dir., State Bldg. Dpt., Lansing, utilities, underground utilities to various bldgs., Coldwater State Home and Training School. Harley, Ellington & Day, 153 E. Elizabeth St., Detroit, Zone 1, archts.

Mich., Jackson—B.A. 9/5—State, A. N. Langius, dir. state bldg. dpt., Lansing, water sys., 250,000 gal. steel elevated standpipe and fdns., remove existing tanks. CD 11/30/44.

† **Illinois**—B.A. 9/6—U. S. Eng., 834 U. S. Court House and Custom House, 1114 Market St., St. Louis, 1, Mo., construct seepage relief wells, Mississippi River, Chain of Rocks Canal, Granite City, Ill., and vicinity Madison Co. Ill., incl. 13,500 lin. ft. well drilling, 3 552 ft. riser pipe inplace, etc. CIVENG 23-065-52-3. extended date. CD 7/23.

▲ **Mich., Bay City**—B.A. 9/27—City, George MacPhail, city mgr., sewerage disposal plant, 10 mi. interceptor sewers, diversion chambers, river crossing, etc., $5,000,000, Francis Engineering Co., 303 Eddy Bldg., Saginaw, engr. Extended date. CD 7/31.

BIDS ASKED—BUILDINGS

Mich., Grand Rapids—LABORATORY—B.A. 9/5—State, A. N. Langius, Dir., State Bldg. Dpt., Lansing, 2 story, rein.-con. laboratory, Western Michigan Laboratory $300,000. Plans deposit $15. Lee & Kenneth C. Black, 706 Capitol Savings & Loan Bldg., Lansing, archts. Bids May 16 rejected. CD 4/27.

Mich., Dimondale—SCHOOL—B.A. 9/6—Bd Educ., L. B. Leisenring, secy, 2 story, brick, masonry elementary school, $300,000. Plans deposit $25, Warren S. Holmes Co., 2200 Olds Tower, Lansing, archt.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ **C. F. McCurdy Constr. Co.**, 906 Main St., Cincinnati, O., LB, $74,672, connecting mains; $130,227, auxiliary water mains***Chicago Bridge & Iron Co., 332 S. Michigan Ave., Chicago, Ill., LB, $90,000 2 million gal, $76,000, 1½ million gal***Curry Constr. Co., 413 S. Washington St., Bloomington, Ind., LB, $178,800, pump station***C & C Constr. Co., 20001 Pontiac St., Fort Wayne, Ind., LB $593,800. filtrat on plant rebuild and addn.***R. Myers Constr. Co., Salem, Ind., LB $652,725, earth dam and spillway***Layman & Seils Constr. Co. Benton Harbor, Mich., LB $119,800, road relocations***Morris Prosser, Franklin, Inc., LB, $125,000, site imprvs.***Omer Brandon & Son, 8120 E. Jefferson St., Detroit, Mich., LB, $331,693, new master watermains, Waterworks System, BLOOMINGTON, IND. B. P. Wks., City Hall, Bloomington, Ind. Bids Aug. 10. CD 7/9.

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Equip your job with a modern designed field office trailer

Natural beautiful birch finish-drafting table—built in letter files—drawers—cabinets—closet—oil stove heated—insulated—electric lights—wired for telephones—2 rooms.

TRAILER VILLAGE SALES, INC.
8645 Pulaski Highway, Baltimore 21, Md.
Phone: Essex 2233

Great Lakes Dredge & Dock Co., 740 N. Plankington Ave., Milwaukee 3, Wis., LB, $579,300, substructure for Juneau Ave. bridge, MILWAUKEE, WIS. City, Milwaukee, Wis. Bids Aug. 15 CD 7/24.

MICHIGAN—State Hy. Dpt., 222 Townsend St., Lansing, **Hertel & Deyo Co.**, 5205 Division St. S., Grand Rapids, Mich. CA $531,881. est. $450,000. grading, drainage, b. conc., 1.330 mi. on M-21, F 77-68, C3 (F-147-B), F 77-68, C4 (F-65-3), St. Clair Co. CD 8/2 under LB.

▲ **MICHIGAN**—State Hy. Comn., 222 Townsend St., Lansing,
Charles J. Rogers, Inc., 14836 Grand River and Cooke Contg. Co., 116 Penobscot Bldg., Detroit, Mich. LB $884,775. est. $650,000. grading, drainage, b. conc. 0.556 mi. John C. Lodge Expressway, service roads, lighting and signal utilities, UI 82-127, C62 (UI-404 35), Wayne Co.

Wright Constr. Co., Williamston, Mich. LB $303,606. est. $204,000. grading, drainage, bit. aggregate, bit. conc. 12.504 mi. on M-71, M-47, SS 73-14, C2 (B-164 3), etc., Shiawassee Co. Bids Aug. 15. CD 8/10.

▲ **City**, city clk., City Hall, Marquette, Mich. rejected bids July 23. Contr. 1, sewers, LB $246,582; Contr. 2, pumping stations, LB $98,343; Contr. 3, sewage disposal plant, LB $699,700, MARQUETTE, MICH. est. $1,000,000. CD 7/9.

BUILDINGS
LOW BIDS AND CONTRACTS

George W. Lathrop & Sons, Inc., 1510 Montcalm St., Toledo, O., CA. general constr. 2 story FACTORY bldg. for laboratory and mfg.; new BOILER HOUSE, new coal handling facilities***Johnson Plumbing & Heating Co., 1510 Montcalm St., Toledo, O., CA. installing 600 hp boilers incl. revamp steam heating and power equip. Est. Approx. $400,000. ASHLAND. O. Faultless Rubber Co., E. 4 St., Ashland, O. Awarded Aug. 8.

▲ **Knowlton Constr. Co.**, 106 N. Main St., Bellefontaine, O. CA $1,085,700. 6 story STUDENT CENTER BLDG. at Ohio University., ATHENS, O. State Dpt. Wks., S. O. Linzell, dir., State Office Bldg., Columbus, O. Awarded July 24. CD 7/16 under LB.

▲ **Indiana Harbor Belt R.R.**, La Salle St. Station, Chicago, 4, Ill., Own forces, $2,500,000, Gibson FREIGHT YARDS modifications and addns., HAMMOND IND.

▲ **Jonathan Woodner Co.**, 38 S. Dearborn St., Chicago, 3, Ill., CA, $17,000,000, four APARTMENT BLDGS., Dorchester Apartments. CHICAGO, ILL. J. T. & D. M. Schless, 709 Rogers St., Downers Grove, Ill. Monroe Bowman & Assocs., 221 N. LaSalle St., Chicago, Ill., archts. Awarded Aug. 14. CD 1/17, under CA.

▲ **Jonathan Woodner Co.**, 38 S. Dearborn St., Chicago, 3 Ill., CA $8,000,000. eight 1056 units 14 story, APARTMENT BLDGS. formerly known as Irvine Park Gardens at Western Ave. and Addison St., CHICAGO, ILL. John W. Harris Assocs., 134 S. La Salle St., Chicago, 3, Ill. Shaw, Metz & Dolio, 208 S. La Salle St., Chicago, 4, Ill., archts. Awarded Aug. 14. CD 6/30/50 under CA.

Enjay Constr. Co., 105 W. Madison St., Chicago, 3, Ill., CA, $500,000. 65,000 sq. ft. WAREHOUSE, Skokie Blvd. near Oakton St., SKOKIE, ILL. Spool Cotton Co., 740 W. Adams St., Chicago, 6, Ill. L. P. Sumarkoff, 105 W. Madison St., Chicago, 3, Ill., archt. Awarded 8/10.

Hoeppner-Bartlett Co., 631 E. Madison St., Eau Claire, Wis. CA, $747,749. general contract, 2 story, bsmnt., 95x190 ft., Courthouse, CHIPPEWA FALLS, WIS. Chippewa Co., Chippewa Falls, Wis. Bids July 17. CD 7/24, under LB.

Barnes Constr. Co., 1510 Wallen St. S. W., Grand Ranids, Mich. LB $452,000. Brick, steel elementary SCHOOL, EAST GRAND RAPIDS, MICH. Bd. Educ., East Grand Rapids, Mich. J & G Daverman Co., 924 Grandville St., Grand Rapids Mich., archt. CD 7/2.

City, Joseph A. Anderson, secy. Bd. Educ., Flint, Mich. rejected bids July 16, 2 story, brick, steel Gyles E. Merrill SCHOOL, FLINT, MICH. est. $600,000. CD 7/12.

Strom & Strom, Inc., Muskegon, Mich. CA $639,324. brick, steel HOSPITAL, IONIA, MICH. Ionia Co. Memorial Hospital Ionia, Mich. CD 8/1 under LB.

Miller-Davis Co., Kalamazoo, Mich. CA $811,210. brick, steel, concrete SERVICE BLDG., Kalamazoo State Hospital, KALAMAZOO, MICH. State, A. N. Langius, dir., bldg. dpt., Lansing, Mich. Bids July 18. CD 6/19.

WEST OF MISSISSIPPI

STATE HIGHWAY LETTINGS
BRIDGES
September 7, North Dakota — September 11, Texas
STREETS AND ROADS
September 7, North Dakota — September 11, 12, Texas

Tex., Fort Worth—AIRPORT IMPRVS.—B.A. 9/6—City, c/o W. O. Jones, city mgr., runway lighting and marking, $210,000; sanitary sewers, sewage treatment plant at Greater Fort Worth International Airport, $175,000. Plans deposit $100 each. Wyatt C. Hedrick Co., 1005 First National Bank Bldg., engr. CD 7/25.

Nebraska—RURAL DISTRIBUTION LINES—B.A. 9/7—Wayne County Rural Public Power Dist., Lyle Morotz, pres., Wayne, 20 mi. 69 kv. one-pole transmission line, Nebraska 65M, Wayne, Sect. II in Wayne, Pierce and Knox Counties. Plans deposit $10. Hennington, Durham & Richardson, Inc., 626 Standard Oil Bldg., Omaha 2, Neb., engr. CD 1/3.

S. D., Mitchell—HOSPITAL ADDN.—B.A. 9/7—Methodist State Hospital, Mitchell, hospital, addn., $350,000. W. J. Dixo, Mitchell, archt. CD 1/14/49.

▲ **Kan., Leavenworth**—B.A. 8/1/52—City, Ted L. Sexton, mayor, constr. bridge across Missouri River, $2,000,000, Howard-Needles-Tammen & Bergendoff, 921 Walnut St., Kansas City, Mo., engrs. CD 6/29.

BIDS ASKED—BUILDINGS

▲ **Minn., Crookston**—HOSPITAL—B.A. 9/4—Bethesda Hospital, Bd. Trustees, F. H. Stadsvold, secy., A. T. Atkins, admin., Crookston, 3 story, 146x154 ft., T-shaped hospital, $1,000,000. Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, archts. CD 1/19/49.

Tex., Dallas—SCHOOL—B.A. 9/10—Dallas Independent School Dist., Elisha M. Pease Elementary School, $650,000, Buford & Feinberg, Interurban Bldg., and Mark Lemmon, 1210½ Main St., archt., and engrs. CD 6/21.

† **Tex., San Antonio**—SCHOOL—B.A. 9/11—Communities Facilities Service of Housing & Home Finance Agency, c/o W. H. Sindt, div. engr., 1016 T & P Bldg., Fort Worth, elementary school, $450,000. Plans deposit $25. Harvey P. Smith & Assocs., 1204 National Bank, Commerce Bldg., archts., Halsey & Royer, 2107 Transit Tower and Chas. A. Reynolds, Jr., 500 Insurance Bldg., engrs. CD 6/27.

Tex., Wichita Falls—GYMNASIUM—B.A. 9/12—Wichita Falls Independent School Dist., gymnasium, auditorium cafeteria to Zundelowitz and Reagan Junior High Schools, $425,000. Plans deposit $25. Ray C. Arnold, Nacol Bldg., archt. CD 5/24.

BUILDINGS

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul.

O. B. Ashbach & Sons, 2975 Hamline Ave. N., St. Paul, Minn. CA $384,310. Grading, bridge 2.2 mi., Clay Co.

Fischer Constr. Co., Farmington, Minn. CA $131,763. Grav. base, road mixed bit. surf. 8.4 mi., Stearns Co.

Guggemos Constr. Co., Hudson, Wis. CA $117,535. Grav. base, road mixed bit. surf. 10.4 mi., Lincoln Co.

Johnson Constr. Co., Litchfield, Minn. CA $148,849. grading 7.1 mi., Traverse Co.

C. F. Sculley Constr. Co., 725 Front Ave., St. Paul, Minn. CA $199,310. b. conc. asph. conc. surf. 1 mi. Summit Ave., Ramsey Co. Grand total $981,767. Bids Aug. 10. CD 7/26.

† **W. V. Roedter**, 209 Builders Exchange Bldg., Duluth, Minn. CA $729,934. Constr. buildings and facilities at Duluth Air Force Base, DULUTH, MINN. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. CD 7/27, under LB.

† **Maxwell Bridge Co.**, Columbus, Kan. CA $985,052. bridge over Little North Fork of White River, near Theodosia, Ozark Co., MISSOURI. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo.

† **Dave Gustafson & Co.**, Wilson Terminal Bldg., Sioux Falls, S. D., LB, $741,523; basic bid, **Peter Kiewit Sons, Co.**, Omaha National Bank Bldg., Omaha, Nebr., LB, $410,677, Alt. on black top constr. paving and utilities at Rapid City Air Force Base, near Weaver, Inv. 52-19 (SP) RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Nebr. Bids Aug. 10. CD 8/2.

A. F. Reis, National Bank of Topeka Bldg., Topeka, Kan. CA $589,377. 526.4 mi. rural distr. lines, Jewell, Mitchell, Osborne, Russell, Lincoln, Cloud, Rooks and Smith Counties, KANSAS. Jewell-Mitchell Cooperative Electric Co., Mankato, Kan. Bids Aug. 15. CD 7/27.

▲ **Metropolitan Paving Co.**, 300 S. Indiana St., Oklahoma City 4, Okla. CA $509,493. est. $518,000. access road on Classen from 19 to 36 Sts.; **Boecking Constr. Co.**, Bethany, Okla. CA $506,906. est. $510,000. access road on Classen from Main to 19 Sts., OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla. Awarded Aug. 15. CD 8/13, under LB.

▲ **TEXAS**—State Hy. Dpt., State Hy. Bldg., Austin.

Austin Bridge Co. & Worth Constr. Co., P.O. Box 531, Fort Worth, Tex., LB $501,676, est. $175,000. b. conc. 5.108 mi. Hy. SH 183, Proj. F 1055 (3), Tarrant Co.

Cooper & Woodruff, 1203 Dallas National Bank Bldg., Dallas, Tex., LB $71,953, est. $75,000. grading, structures, base, surf. 6.984 mi. on Hy. FM 1547, Proj. RY 761-4-1, Collingsworth and Wheeler Counties.

J. R. Fanning, P.O. Box 1047, Lubbock, Tex. LB $69,413, flexible base, 2 course surf. tr. 2.015 mi. Hy. FM 89, SH 51, Proj. S 1514 (1), Andrews Co.

Farnsworth & Chambers Co., Inc., P.O. Box 74, Houston, Tex. LB $118,670, grading, structures, base, surf. 5.439 mi. Hy. FM 1405, Proj. R 1024-2-1, Chambers Co.

Gulf Bitulithic Co., P.O. Box 2097, Houston, Tex. LB $62,772, est. $60,000, flexible base, hot mix b. conc. 1.509 mi. Hy. US 75, Proj. C 51-4-30, Galveston Co.

Harrison Engineer & Constr. Corp., 4638 Mill Creek Parkway, Kansas City, Mo., LB $180,179, est. $175,000. width, c. conc., conc. surf. 1.185 mi. on Hy. US 90 and SH 6, Proj. C 49-9-7, Brazos Co.

C. R. Heidelberg, Jacksonville, Tex., LB $117,454, est. $80,000, flexible base, 1 course conc. tr. 4.206 mi. Hy. SH 61, Proj. C 242-2-8, Liberty Co.

Ernest Loyd, P.O. Box 1120, Dallas, Tex. LB $207,549, est. $175,000. grading, structures, base, surf. 15.196 mi. Hy. FM 278, Proj. V 791-5-1, Hansford Co.; LB $72,282, est. $60,000, grading, structures, base surf. 4.736 mi. Hy. FM 1501 and FM 1501 Spur, Lamar Co.

T. E. Sanderford, Belton, Tex. LB $66,509, est. $60,000. grading, structures, base surf. 6.952 mi. Hy. FM 1237, Proj. R 752-7-1, Bell Co.

Spencer Constr. Co., Inc., Carrollton, Tex. LB $146,320, est. $175,000, grading, strucures 6.309 mi. Hy. SH 103, Proj. TFHP 26 C, Nacogdoches Co. Bids Aug. 15. CD 7/30 and 7/26.

▲ **W. S. Bellows Constr. Corp.**, Box 2132, Houston, Tex. CA $4,771,000. gen. constr. HEADQUARTERS BLDG., Eng. 41,243,52-1, KELLY AIR FORCE BASE, TEX. U. S. Eng., 606 Santa Fe Bldg., Galaveston, Tex. CD 8/22 under LB.

▲† **Grafe-Callahan Constr. Co.**, 1 National Bank Bldg., Dallas, Tex., LB (1), $2,350,232, est. $2,003,135 (Items 21 and 22), completing David Dam Spillway stilling basin; **United Concrete Pipe Corp.**, 419 W. Arrow Hy., Baldwin Park, Calif., **J. A. McNeil Co., Inc.**, and **Ralph A. Bell**, 714 W. Olympic St., Los Angeles, Calif., LB, (2), $362,500, est. $295,500. excavation for Colorado River channel imprvt., Spec. DC-3413 COLORADO Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Bids Aug. 14. CD 8/2.

▲† **Mead & Mount Constr. Co.**, 240 Railway Exchange Bldg., Denver, Colo., CA, $1,716,000. Naval Air Reserve training hangar and teantos, Spec. 29458, DENVER, COLO. Dpt. Navy, Buckley Field Naval Air Station, Denver, Colo. Bids June 27, awarded Aug. 10. CD 7/17, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Lummus Co.**, 385 Madison Ave., New York 17, N. Y. CA $7,000,000. oil REFINERY with 11,500 bbl. daily capacity, incl. fluid catalytic cracking unit, near Superior, Wis., DULUTH, MINN. International Refineries, Inc., 227 Colfax Ave. N., Minneapolis, Minn. CD 10/31/50. under Superior, Wis. Western Oil & Fuel Co.

Wiches Boiler Co., 414 New Center Bldg., Milwauke, Wis. CA $848,823. two steam generating units in Municipal Power PLANT, HIBBING, MINN. Village, Pub. Utilities Comm., E. A. Anderson, secy., Hibbing, Minn. CD 6/27, under LB.

Vawter Development Co., 4800 W. 51 St., Kansas City, Kan. Owner Builds. $600,000. 49 RESIDENCES, Mission Twp., RFD from Kansas City, KANSAS CITY, KAN.

▲ **Stearns-Roger Mfg. Co.**, 1720 California St., Denver, Colo. CA, $2,750,000. gasoline PLANT addn., incl. process columns, and vessels, product storage tanks, boiler compressors, auxiliaries, etc., ULYSSES, KAN. Stanolind Oil & Gas Co., Stanolind Bldg., Tulsa, Okla. Bids Nov. 13. CD 4/26/51.

▲ **Gasoline Plant Constr. Corp.**, N. Esperson Bldg., Houston, Tex. CA $1,585,570. natural gasoline PLANT; CA $985,000. five 2,500 hp COMPRESSORS to boost inlet field gas, CHESTER, OKLA. Warren Petroleum Corp., National Bank Bldg., Tulsa, Okla.

▲ **W. R. Grimshaw**, KOME Bldg., Tulsa, Okla. CA $1,750,000. 7 story Y. M. C. A. BLDG., TULSA, OKLA. Young Men Christian Assoc., 121 E. 4 St., Tulsa, Okla. Leon Senter, Philtower Bldg., Tulsa, Okla., archt. Awarded Aug. 13.

▲ **Shell Oil Co.**, Shell Bldg., Houston, Tex. Project indefinitely postponed. benzine plant, HOUSTON, TEX. est. $12,330,000. CD 5/23.

Eitze-Kitchens, 1512½ S. Congress, Austin, Tex. LB $811,811. HOSPITAL WARD bldgs. incl. remodeling Bldg. 1, for Senile, KERRVILLE, TEX. Bd. for Texas State Hospitals and Special Schools, 45 and Lamar Sts., Austin, Tex. Bids Aug. 20. CD 5/24.

▲† **Stearns Rodger Mfg. Co.**, 1718-20 California St., Denver, Colo., CA, $4,500,000 plus, federal electronics testing LABORATORY to study radio waves, time standards and other secret effects considered vital to national military security, BOULDER, COLO. Bureau of Standards, Dpt. Commerce, Connecticut at Upton Ave. N.W., Wash., D. C. CD 12/23/49.

Mead & Mount Constr. Co., 240 Mailway Exchange Bldg., Denver, Colo., CA $999,000, est. over $300,000. general contract, 2 story, 75,000 sq. ft., Grant Junior High SCHOOL, South Pearl and E. Colorado Ave., DENVER, COLO. School Dist. No. 1, 414 14 St., Denver, Colo. Bids Aug. 8. Awarded Aug. 15. CD 7/2.

FAR WEST

STATE HIGHWAY LETTINGS

BRIDGES

September 12, California

STREETS AND ROADS

September 12, 13, California

† **Washington** — SUBSTATION — B.A. 9/7—Bonneville Power Admin., 827 N. E. Oregon St., Portland, Ore., surfacing at Covington Substation, King Co., Inv. 5969. Plans deposit $1. L. C. Stewart, 827 N. E. Oregon St., Portland, Ore., engr. CD 2/5.

† **Oregon**—TRANSMISSION LINE—B.A. 9/7—Bonneville Power Admin., 827 N. E. Oregon St., Portland, constr. Bandon-Port Orford and Port Orford-Gold Beach 115 kv transmission line, Inv. 6020, Coos and Curry Counties. Plans deposit $25, L. C. Stewart, c/o owner, engr.

Calif., Folsom—B.A. 9/12—City, Fire House, sanitary sewers; sewerage treatment plant, appurtenances. Plans deposit $25, $15 refundable. L. C. Macabee, 156 University Ave., Palo Alto, engr. CD 6/21.

† **Wash., Spokane**—ELECTRICAL DIST. SYS.—B.A. 9/12—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, underground electrical distr. sys. and sub-station at Fairchild Air Force Base, Inv. 52-3. CD 5/1.

† **Wash., Spokane**—LIGHTING, TAXIWAY—B.A. 9/12—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, over-run lighting, Inv. No. 52-4; taxiway extens., Inv. No. 62-6 at Geiger Air Force Base.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **McNutt Bros.**, Eugene, Ore., LB, $760,512, clearing grubbing, grading, draining 10.702 mi. McCall-Stibnite Hy., Proj. 48-B, Valley Co., IDAHO. Bureau P. Rds. Dpt. Commerce, 6099½ Bannock St., Boise, Idaho. Bids Aug. 16. CD 8/1.

† **Idaho**—Bureau P. Rds. Dpt. commerce, 6099½ Bannock St., Boise, rejected bids Aug. 16, clearing, grubbing, grading, drainage, 10.702 mi. McCall-Stibnite Hy., Proj. 48-B, Valley Co. L.B. $760,512. CD 8/21, under LB.

▲† **Peter Kiewit Sons Co.**, 1300 Alaka St., Seattle, Wash., LB. $1,357,965, est. $1,494,585, earthwork and structures for Potholes East Canal, Station 1370 plus 50 to 2489 plus 41.75, Ringold Wasteway, Station 0 plus 00 to 240 plus 20 and lateral PE 47, Station 0 plus 00 to 2 plus 29.88, Spec. DC-3494, Columbia Basin Proj., WASHINGTON. Bureau Reclamation, Dpt. Interior, Ephrata, Wash. Bids Aug. 8. CD 7/16.

▲ **Boeing Airplane Co.**, 7756 E. Marginal Way, Seattle, Wash. Day Labor, $1,405,000, wind tunnel addn., SEATTLE, WASH. CD 4/2.

† **O. K. Mittry and N. M. Saliba Co.**, 4833 San Fernando Rd. West., Los Angeles, Calif., LB $667,180, est. $725,950 Parts A, major part and (b) b. conc. upstream slope protections of Glen Anne Dam, Spec. Dc 3482, Cachuma Proj. CALIFORNIA Bureau Reclamation, Dpt. Interior, Goleta, Calif. Bids Aug. 7. CD 8/21 (Correction—Owner).

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Olsen Constr. Co.**, P.O. Box 89, Salt Lake City, Utah. CA $1,058,950. est. $1,200,000. general contract, Senior High SCHOOL, Granite Park, SALT LAKE CITY, UTAH. Granite School Dist., 3212 S. State St., Salt Lake City, Utah. Bids Aug. 14. CD 7/7.

† **L. H. Hoffman Co.**, 715 S.W. Columbia Blvd., Portland, Ore., LB, $533,500, LIBRARY and Rec. bldgs., and badge house at Hanford Works, RICHLAND, WASH. General Electric Co., Richland, prime contractor to Atomic Energy Comm., for operation of Hanford Works, Richland, Wash. Bids Aug. 16.

Los Angeles City Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif., rejected bids May 16, 2 story rein.-con. OFFICE and garage bldg. addn., L.B. $829,414. LOS ANGELES, CALIF. CD 5/25, under LB.

General Services Admin., Pub Bldg. Service, General Services Bldg., Wash., D. C., rejected bids July 26, extens., and remodeling TERMINAL annex, (Operation No. 1) L.B. $972,000. LOS ANGELES, CALIF. CD 7/30 under LB.

▲ **James I. Barnes Constr. Co.**, 299 Kansas St., San Francisco, Calif., CA, $1,975,000, general contract; **B. A. Newman Co.**, P. O. Box 107, Fresno, Calif., CA, $509,811, mechanical work HOSPITAL ADMINISTRATION bldg. and housing etc., Porterville State Home, PORTERVILLE, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids July 31, awarded Aug. 17. CD 8/7, under LB.

▲† **F. L. B. Curtis & Assoc.**, 3459 Long Beach Blvd., Long Beach, Calif., LB, $5,955,166, construct, manage and finance 895 unit HOUSING proj. FHA 129-80003 Navy 3 and FHA 129-80004. Title VIII, Wheery Housing, at Kearney Mesa, SAN DIEGO, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids Aug. 15. CD 7/23.

U. S. POSSESSIONS

BIDS ASKED—HEAVY CONSTRUCTION

† **Puerto Rico, Aguadilla**—NURSES QUARTERS—B.A. About 9/18—U. S. Eng., P.O. Box 4970, Jacksonville, Fla., nurses quarters, Ramey Air Force Base. Serial No. Eng 08-123-52-31. Plans deposit $10.

CANADA

SOON LETS CONTRACT—HEAVY CONSTRUCTION

▲ **Ontario**—PIPE LINE—Imperial Oil Ltd., 56 Church St., Toronto, Ont., soon lets contract, laying mostly in trench 185-mile pipe line Sarnia to Toronto, incl. laying 125 miles of 12-in. and 60 miles of 10-in. spiral-welded steel pipe, following loosely along Canadian National Ry., $9,000,000. plus, via London and Hamilton. CD 2/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **E. R. Tremblay**, 39 Goulburn Rd., Ottawa, Ont., CA, Approx. $1,000,000, 130 HOUSING units with bsmnts., at R.C.A. F. Station, Uplanda Airport, UPLANDS (Ottawa) ONT. Central Mortgage & Housing Corp., 441 Queen's Quay W., Toronto 28, Ont. Bids July 17. CD 7/11.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Foundation Co. of Canada Ltd.**, 1900 Sherbrooke St. W., Montreal, Que., CA, est. cost, $3,500,000, new FACTORY and processing units, MARELAN, QUE. Canadian Refractories, Ltd., Canada Cement Bldg., Montreal, Que., J. Mitchell, 217 Bay St., Toronto, Ont., engr.

(Proposal Advertisements see pp. 86 to 90)

OFFICIAL PROPOSALS

RATE: THE RATE FOR OFFICIAL PROPOSAL ADVERTISING IS $1.25 PER LINE (OR FRACTION) PER INSERTION.
CLOSING DATE: FRIDAY 10:30 A. M. FOR THE ISSUE DATED THE FOLLOWING THURSDAY.
SEND COPY TO: OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

Bids: September 11, 1951

Clinton New Jersey Reformatory

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

General work, structural steel and miscellaneous iron work, plumbing, heating and ventilating and electric work in connection with a Close Custody Unit at the Reformatory for Women at at Clinton, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Tuesday, September 11, 1951 at one (1:00) o'clock, E.S.T. and will be opened and read immediately thereafter.

Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

Plans and specifications, form of bid, contract and bond for the proposed work are on file and may be obtained upon application to the Director, Division of Purchase and Property, State House, Trenton, New Jersey on deposit of twenty-five dollars ($25.00) for each set; this amount to be refunded to the bidder upon receipt of same in good condition within 30 days after the award of the contract.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director

Bids: September 25, 1951

Relocation of Railroad Tracks

RELOCATION OF THE CHICAGO AND NORTH WESTERN R. R. AND CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC R. R. TRACKS
CONTRACT NO. 7
(SPECIFICATION NO. 80.475-51-12)
O'HARE FIELD, CHICAGO INTERNATIONAL AIRPORT
DEPARTMENT OF PURCHASES, CONTRACTS AND SUPPLIES
Chicago, Ill. Aug. 23, 1951.

SEALED PROPOSALS endorsed "For relocation of the Chicago and North Western R. R. and Chicago, Milwaukee, St. Paul and Pacific R. R. tracks at O'Hare Field, Chicago International Airport, Contract No. 7, will be received by the City of Chicago until 11:00 A.M. (CDST) Tuesday, September 25, 1951 at Room 401 City Hall, Chicago, Illinois, at which time and place all such proposals will be opened and read publicly. O'Hare Field is bounded by Mannheim Road, Irving Park Road and York Road in Cook County and Dupage County in the State of Illinois.

The work for which such proposals are invited consist of furnishing all labor, materials, tools, supplies and equipment required and transportation facilities and perform all operations necessary to complete the Relocation of the Chicago and North Western R. R. and Chicago, Milwaukee St. Paul and Pacific Railroad Tracks, Contract No. 7, at O'Hare Field, Chicago International Airport, including all work shown on the drawings and specifications, all in accordance with the provisions of this Proposal.

Payment for the work and materials under this contract will be made from the Airport Bond Fund. The unit or lump sum prices bid on the Proposal shall include all costs necessary to furnish all labor and all material as specified. Claims for extra compensation for any reason, regardless of the nature of the claim will not be allowed.

The Contract Documents prepared by the Airport Consultant of the City of Chicago are on file and available to the bidders at the office of the Department of Purchases, Contracts and Supplies, Room 401 City Hall, Chicago (2) Illinois. Copies of the Contract documents and plans may be obtained by depositing FIFTY DOLLARS ($50.00) in cash, or certified check with said Department of Purchases, Contract and Supplies for each set of plans and documents. The amount of the deposit will be refunded upon the return of said plans and documents within Thirty (30) days after the opening of bids.

Proposals must be submitted upon blank forms of proposals contained in the contract document and be addressed to said Department of Purchases, Contracts and Supplies, Room 401, City Hall, Chicago 2, Illinois and be accompanied by cash, cashier's check, certified check or City Comptrollers Certificate of monies owed the particular vendor in the sum of two hundred fifty thousand ($150,000.00) dollars.

Checks must be drawn on some responsible bank doing business in the United States, and shall be made payable to the order of the Purchasing Agent. Any proposal submitted without being accompanied by such cash, check, or comptroller's certificate may be considered informal and be rejected.

The successful bidder will be required to pay laborers, workmen, mechanics and others employed in the work under contract, not less than the general prevailing wage for each craft, trade, or occupation, and not less than the minimum wage rates established by the Secretary of Labor pursuant to the requirements of the Federal Airport Act. In compliance with House Bill No. 35-(Illinois General Assembly) approved June 26, 1941, the Purchasing Agent has ascertained the general prevailing rate of per diem wages for each craft or type of mechanic or workment needed to execute work on this contract at the site, all as designated in the schedule titled "Minimum Wage Rates Authorized for this Contract in a decision rendered by the United States Department of Labor".

Successful bidder will be required to furnish, execute and deliver to the Purchasing Agent a Performance Bond satisfactory to the Purchasing Agent in the amount and within the period of time set out in the contract documents.

The Purchasing Agent reserves the right to reject any or all bids.

J. F. Ward,
Purchasing Agent

Bids: September 11, 1951

Postponement of Bid Date Conical Plug Valves, Etc. Contract 412

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, August 21, 1951, for Contract 412, for furnishing, testing and delivering eight 48-inch and two 36-inch cast steel motor-operated conical plug valves, two 42-inch, two 24-inch and one 12-inch cast iron motor-operated conical plug valves, one 14-inch cast iron manually-operated conical plug valve, one 20-inch cast iron motor-operated gate valve, pipe couplings and miscellaneous valves for installation in the intake and outlet chambers of the Neversink tunnel, the Downsville release water chamber and the outlet chamber of the East Delaware tunnel of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of thirty-five thousand dollars ($35,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

NOTICE TO BIDDERS

NOTICE IS HEREBY GIVEN that the receipt and opening of bids on the above Contract 412 have been postponed until 10:00 A.M., Eastern Standard Time, on Tuesday, September 11, 1951.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, Commissioners, Board of Water Supply: RICHARD H. BURKE, Secretary.

Bids: September 11, 1951

Heating and Ventilating Equipment

CONTRACT 327

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, September 11, 1951, for Contract 327, for furnishing, delivering, installing and testing heating, ventilating and appurtenant equipment for the Rondout, West Branch and Kensico South effluent chambers, and heating equipment with appurtenances for the drainage chamber at Shaft 13, the coagulating plant at Shafts 17 and the Kensico comfort station, and for performing appurtenant miscellaneous construction, all as set forth in the specifications. The locations of the proposed work are in the Towns of Wawarsing, Ulster county, Carmel, Putnam county and Bedford, North Castle and Mount Pleasant, Westchester County, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of ten thousand dollars ($10,000.00) for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in triplicate, for furnishing all labor and materials and performing all work required for Construction and Delivery of Two (2) Side Dump Scows at the Corps of Engineers Boatyard, Fountain City, Wisconsin, will be received in this office until 11:00 A.M., C.S.T., 4 October 1951, and then publicly opened. Further information upon application.

U. S. Government

August 15, 1951

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION

NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-214 for furnishing labor and materials and performing all work for the construction of Seminoe-Kortes Control Cable Line, Oregon Trail Division, Kortes Unit, Wyoming, Missouri River Basin Project, will be mailed to P. O. Box 280, Casper, Wyoming, or delivered to the office of the Bureau of Reclamation in time for the public opening at 10 a.m., Mountain Standard Time, September 13, 1951, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming.

Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation; Avery A. Batson, Regional Director, Building 11, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all other $0.50 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

Department of Commerce, Bureau of Public Roads, August 22, 1951. SEALED BIDS will be received at the office of the Bureau of Public Roads, 214 Globe Building, 4th and Cedar Street, St. Paul, Minnesota, until 11:00 A.M., C.S.T., September 21, 1951, for Wisconsin Forest Highway Project No. 26-A, Nicolet National Forest, Florence County, Wisconsin. Grading, Draining, Gravel Surface Course, and other work. Length 10.907 miles east from Tipler. The approximate quantities of the more important items are 60 acres Clearing and Grubbing, 300,000 cu. yd. Excavation, 22,000 cu. yd. Gravel and 1,864 lin. ft. Concrete Culvert Pipe. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or certified check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after the opening of bids. Plans, Specifications, and Proposal forms may be obtained at the address given above, or Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia. H. J. Spelman, Division Engineer.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3528) will be received by Bureau of Reclamation, Ephrata, Washington, until September 19, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, lateral lining, pipe lines, and structures, area P-1 laterals and sublaterals, Potholes East Canal Laterals, Columbia Basin Project. The work is situated near Othello, Washington. Principal items are approximately: Excavation for laterals, 490,000 cu. yds.; concrete lateral lining, 8,875 cu. yds.; placing reinforcement bars in structures, 167,400 lbs.; furnishing and handling cement, 14,530 bbls.; furnishing and laying various diameter concrete pipe, 36,810 lin. ft.; and other work. Time allowed for completion will be 395 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: September 12, 1951

Highway Construction Work

Sealed proposals will be received by the State Highway Department at its offices in Dover, Delaware until 2:00 P.M., E.D.S.T. (1:00 P.M., E.S.T.) September 12, 1951, and at that time and place publicly opened for contracts involving the following approximate quantities:

CONTRACT 1048
9/10 Mi. So. Woodside to Camden
Kent County
22' Hot Mix Asphalt Resurface
3.585 Mi.

6,000	C. Y. Selected Borrow
8,600	T. Hot Mix Asphalt Surface
200	S. Y. Patching
160	L. F. 12" R. C. Pipe
4	Each Adjusted Catch Basins
1,300	Gal. R. C. 1 Asphalt
1,300	Gal. R. C. 2 Asphalt
52	T. Stone Chips
52	T. Crushed Chips

OFFICIAL PROPOSALS

CONTRACT 1086
GREENWOOD TO ANDREWSVILLE
Kent & Sussex Counties
20' Stabilized & Surface Treated
Road 4.461 Miles
Federal Aid Project S-106 (1)

3.2	A. Clearing
3.2	A. Grubbing
19,500	C. Y. Excavation
6,700	C. Y. Borrow
200	C. Y. B. P. Stripping
12,500	C. Y. Selected Borrow
8	C. Y. C. C. Masonry
300	Lbs. Reinforcing Steel
1	Sq. Wire Mesh Reinforcement
2,000	L. F. 12" R. C. Pipe
325	L. F. 15" R. C. Pipe
75	L. F. 18" R. C. Pipe
80	L. F. 24" R. C. Pipe
40	L. F. 30" R. C. Pipe
180	L. F. 48" R. C. Pipe
50	L. F. 4" Vit. Clay Pipe
60	S. Y. C. C. Gutter
200	S. F. 4" C. C. Sidewalk
3	Each Catch Basins
1,500	Lbs. Castings
4,000	S. Y. Topsoil
1	A. Seeding
200	S. Y. Sodding
30,200	Gal. R. C. 1 Asphalt
30,200	Gal. R. C. 3 Asphalt
1,200	T. Slag Chips
1,200	T. Crushed Chips
3,000	L. F. Ditching
100	S. F. Reset Brick Sidewalk
1	L. S. Removal Pres. Bridge

Contract 1086 is a Federal Aid Project and the provisions of the Federal Aid Highway Act, as amended, are applicable thereto.

The Employment Agency for these contracts shall be the Delaware State Employment Agency whose offices are located at 307 S. State Street, Dover, Delaware, and 5 S. E. Front Street, Milford, Delaware.

Attention is called to the Special Provisions in the proposal, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Proposal for the construction of State Highway Contract No. ....."

The contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets of plans and specifications may be obtained upon receipt of five dollars ($5.00) for each set, which amount will not be refunded.

Make checks payable to the State Highway Department.

STATE HIGHWAY DEPARTMENT
By: J. Gordon Smith
Chairman

Richard A. Haber, Chief Engineer
August 15, 1951

Bids: October 4, 1951

Bay City Improvements

Construction Of Sewage Treatment Works Including Plant, System Of Intercepting Sewers, River Crossing, Et Cetera, For The City Of Bay City, Michigan, For A Total Cost Of Project Estimated At Approximately 5½ Million, And Ten Construction Contracts As The Maximum Number Possible.

Sealed proposals for the construction of a Sewage Treatment Works, Incineration Equipment, River Crossing And Plant Outfall Tube, Approximately 50,000 Linear Feet Of Intercepting Sewers ranging in size from 15-inches to 54-inches in diameter involving both tunnel and open cut construction, and Diversion And Control Chambers at 45 locations, for the City of Bay City, Michigan, will be received at the office of the City Purchasing Agent, City Hall, Bay City, Michigan, until 8:00 P.M. Eastern Standard Time October 4, 1951.

The successful bidder will be required to furnish satisfactory performance and labor and material bonds, and compensation, public liability, and property damage insurance as specified.

Proposals shall be accompanied by a bid deposit as specified and made on the proposal forms included with the specifications and other documents.

Copies of the plans, specifications, and other documents may be obtained from the office of The Francis Engineering Company, 301-305½ Eddy Building, Saginaw, Michigan, upon application accompanied by a check in the proper amount made payable to The Francis Engineering Company, all of which will be refunded provided a bona fide bid is filed and plans, specifications, and other documents are returned in good condition within ten days after the opening of bids. Otherwise there will be no refund. The schedule of deposits for plans is as follows:—Sewage Treatment Works $60.00; Incineration Equipment $50.00; River Crossing And Plant Outfall Tube $25.00; Intercepting Sewers $50; and Diversion And Control Chambers $35.00.

The City of Bay City reserves the right to reject any or all bids and to waive any informalities in bids, and to hold proposals for a period of thirty (30) days, during which time bidders may not withdraw their proposals.

This advertisement is a summary of the five official advertisements which will be mailed gratis upon request and carry more detailed information.

City Of Bay City, Michigan
By Elford A. Cederberg—Mayor
By Charles W. Kindermann
City Purchasing Agent.

August 13, 1951

Bids: September 5, 1951

Test Borings

NEW YORK STATE BRIDGE AUTHORITY
KINGSTON, N. Y.

SEALED PROPOSALS for the making of test borings, securing samples and other work incidental thereto, in and adjacent to the Hudson River at the site of the proposed Kingston-Rhinecliff Bridge across the Hudson River and located approximately three and one half miles north of Kingston Point, will be received by the New York State Bridge Authority at its office at 22 Ferry Street, Kingston, New York, until 2:00 P.M. Daylight Saving Time September 5, 1951, at which time and place they will be publicly opened and read.

Plans, specifications, proposal blanks, form of contract, bond and information for bidders may be seen at the office of the New York State Bridge Authority, 22 Ferry Street, Kingston, New York, and copies of the same may be obtained upon application to D. B. Steinman, Consulting Engineer, 117 Liberty Street, New York 6, New York, upon a deposit of Fifteen Dollars ($15.00) which sum will be refunded if the plans and specifications are returned by bidders in good condition within twenty (20) days of bids having been received and acted upon by the New York State Bridge Authority, and Ten Dollars ($10.00) of the deposit will be so returned to non-bidders.

A certified check on a National Bank, State Bank or Trust Company in the sum of ten per cent (10%) of the amount of the bid, made payable to the New York State Bridge Authority, must accompany the bid, as a guarantee that the contract will be entered into, if awarded.

A bond in the sum of one hundred per cent (100%) of the contract price will be required.

The New York State Bridge Authority reserves the right to reject any or all bids.
JAMES F. LOUGHRAN, Chairman.

Bids: September 14, 1951

Incinerator Plant

Clairton, Pennsylvania
August 20, 1951

Sealed proposals will be received by Clairton Municipal Authority until 8:00 P.M., Eastern Standard Time, on September 14, 1951, at the offices of the Authority, St. Clair and Miller Avenues, Clairton, Pennsylvania, for the construction of a refuse incinerator plant, complete with chimney and building, located on State Street in the City of Clairton. All sealed proposals will be opened and read at the time and place designated for said reception of bids.

Copies of bidding forms with specifications and other contract documents may be obtained by prospective bidders upon application to Laboon and Bankson, Consulting Engineers, 1116 Berger Building, Pittsburgh 19, Pennsylvania, at a cost of Fifty ($50.00) Dollars per set, which will be refunded on receipt of a bona fide bid and return of plans and specifications in good order. Only Twenty-five ($25.00) Dollars will be refunded to those who return the plans and specifications in good order within sixty (60) days after bidding date but do not submit a formal bid.

The right is reserved to reject any or all bids.

CLAIRTON MUNICIPAL AUTHORITY
By George F. Howe, Chairman

LABOON AND BANKSON
Consulting Engineers
1116 Berger Building
Pittsburgh 19, Pa.

OFFICIAL PROPOSALS

Bids: September 12, 1951

New York State Bridges & Highways

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway, Canal and Building Laws, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, September 12, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects; Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. NICKERSON, Dist. Engr., 333 Broadway, Albany, N. Y.				
Albany, Rens., Greene,	R.C. 51-68	Bridge No. 1, S. H. 5614-5639 Bridge No. 1, S. H. 5716 Bridge No. 1, S. H. 200-721	.....	Painting 4 Bridges	$1,000 Plans $10	$18,000
Greene	W. S. No. 11	Truck Weighing Station Turn-out on Catskill-West Coxsackie, Pt. 2, S. H. 6384 Bridge No. 1, S. H. 720	0.21	Asp. Conc. Type 1A Opt.	$750 Plans $10	$13,000
Saratoga, Washington						
		DISTRICT No. 2				
		L. KETCHUM, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Montgomery	FAS851-23	Scotch Bush-Scotch Church Proj. 5362(1)	3.19	Bit. Treated Graded Gravel	$8,000 Plans $15	$157,000
Oneida	FARC51-61	Rome-Taberg, S. H. 563 Proj. F035(5)	2.17	Asp. Conc. Ty. 1A, Opt.	$5,000 Plans $10	$87,000
		DISTRICT No. 4				
		A. R. MULLIGAN, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Monroe	M-51-5	Gates 3 & 4 Barge Canal Harbor Dam, City of Rochester	.....	Construct New Concrete Apron	$2,600 Plans $10	$45,940
Orleans	FAS851-24	S. H. 392—Clarendon-Monroe County Line, Pt. 2, Proj. 8242(2)	2.34	Bit. Mac. Rd. Mix	$6,000 Plans $10	$113,000
		DISTRICT No. 6				
		H. F. BRUHM, Dist. Engr., 30 West Main St., Hornell, N. Y.				
Chemung & Tioga	FARC51-66	Erin-Van Etten-Spencer, Pts. 2 & 3, S. H. 8010-5657 Spencer Village, S. H. 9091 Spencer-Candor, S. H. 845 Proj. F58(3); 8720(2)	5.01	Asp. Conc. Ty. 1A, Opt.	$50,000 Plans $15	$633,000
		DISTRICT No. 8				
		J. S. BIXBY, Dist. Engr., Pleasant Valley Rd., Poughkeepsie, N. Y.				
Orange	W. S. No. 25	Truck Weighing Station Turn-out on Middletown-Bloomingburg, S. H. 5210	0.20	Asph. Conc. Ty. 1A, Opt.	$600 Plans $10	$10,500
		DISTRICT No. 10				
		J. J. DARCY, Dist. Engr., Montauk Hwy. at Little E. Neck Rd., Babylon, L. I., N. Y.				
Nassau	W.S. Nos. 21 & 22	Truck Weighing Station Turn-Outs on Jericho Turnpike, S. H. 9020	0.47	5" Cem. Conc. Pavt. 12' Wide	$2,400 Plans $10	$44,000
Nassau & Suffolk	FARC51-51	State Highways Nos. 9018, 8474, E8438, 8470, E8440, 8444, 8445, 8460, 1841, 8291, 1883, and 1274 Proj. Nos. F541(8); F985(6)	19.10	Landscaping = 17.00 Mi. Landscaping & Misc. Work = 2.10 Mi.	$3,000 Plans $10	$86,000
Suffolk	——	Various Locations in Suffolk County: — Installing Snow Fence & Arresting Beach Erosion	.....	Furnish & Install. Snow Fence & Arresting Beach Erosion	5% of Bid Plans $10	$27,000
Suffolk	——	Beach Protection at Tiana Beach	.....	Hydraulic Fill & Beach Grass Planting	5% of Bid Plans $10	$54,000
Suffolk	——	Beach Protection at Village of Ocean Beach	.....	4 Concrete Block Jetties	5% of Bid Plans $10	$80,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Canal and Buildings Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Bids: September 19, 1951

West Atchafalaya Floodway

Sealed bids for furnishing, labor and material and performing all work to construct compacted portion of embankment in high level crossing over the West Atchafalaya Floodway for Guy A. Thompson, Trustee, New Orleans, Texas & Mexico Railway Company, Debtor, between Krotz Springs and Cortableu, St. Landry Parish, Louisiana, requiring approximately 1,280,000 cubic yards of borrow material, will be received by C. S. Kirkpatrick, Chief Engineer, 204 Union Station, Houston, Texas, until 10 A.M., Central Standard Time, 19 September 1951, and then publicly opened. August 22, 23, 24 and 25.

September 16 and 17.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3524) will be received by Bureau of Reclamation, Superior, Nebraska until September 20, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Franklin South Side Pumping Plant, canal, and lateral system, Franklin Unit, Bostwick Division, Nebraska-Kansas, Missouri River Basin Project. The work is situated near Franklin, Nebraska. Principal items in 2 schedules are approximately: 140,000 cu. yds. excavation; 600 cu. yds. concrete; 3,500 lin. ft. concrete pipe; 24,000 lbs. gates and metalwork; furnishing and installing pump units and equipment; and other work. Time allowed for completion will be 360 days. For particulars, address Bureau of Reclamation, Superior, Nebraska; or Building 1-A, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: September 24, 1951

Prison Wing Dormitory

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

General work, plumbing, heating and ventilating, electric and structural steel for new Dormitory addition (appropriation reads: "Prison Wing Dormitory") at the State Prison Farm at Rahway, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Monday, September 24, 1951 at one (1:00) o'clock, E.S.T. and will be opened and read immediately thereafter.

Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

Plans and specifications, form of bid, contract and bond for the proposed work are on file and may be obtained upon application to the Director, Division of Purchase and Property, State House, Trenton, New Jersey on deposit of twenty-five dollars ($25.00) for each set; this amount to be refunded to the bidder upon receipt of same in good condition within 30 days after the award of the contract.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director.

Bids: September 17, 1951

State Village for Epileptics

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

General work, plumbing, heating and ventilating, electric, structural steel and miscellaneous iron work, refrigeration and food service equipment for a new Men's Group, Women's Group and Bergen Group at the State Village for Epileptics at Skillman, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Monday, September 17, 1951 at one (1:00) o'clock, E.S.T. and will be opened and read immediately thereafter.

Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

Plans and specifications, form of bid, contract and bond for the proposed work are on file and may be obtained upon application to the Director, Division of Purchase and Property, State House, Trenton, New Jersey on deposit of twenty-five dollars ($25.00) for each set; this amount to be refunded to the bidder upon receipt of same in good condition within 30 days after the award of the contract.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director.

OFFICIAL PROPOSALS

Bids: September 5, 1951

New York Highway Projects

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, September 5, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Pub-Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, N. Y.				
Rensselaer	WS #17	Truck Weighing Station Turnout on Schodack Ctr.-Valatie Pt. 3, SH 5084	0.22	Asp. Conc. Ty. 1A, Opt.	$600 Plans $10	$11,000
6 Cos. & 3 Cities in Dist. #1	FARC51-17	Installation of Automatic Recording Traffic Counters in Dist. #1 Proj. S.W.H.P. 1(8)		Installation of 11 Automatic Recording Traffic Counters	$900 Plans $10	$16,995
		DISTRICT No. 2				
		L. Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Herkimer	WS #5	Truck Weighing Station Turnout on Little Falls-East Creek, S. H. 456	0.21	Asp. Conc. Ty. 1A, Opt.	$450 Plans $10	$8,000
Montgomery	WS #6	Truck Weighing Station Turnout on Palatine Bridge-Fonda Pt. 2, S. H. 5125	0.22	Asp. Conc. Ty. 1A, Opt.	$500 Plans $10	$9,000
5 Cos. & 2 Cities in Dist. #2	FARC51-18	Installation of Automatic Recording Traffic Counters in Dist. # 2 Proj. S.W.H.P. 1(8)		Installation of 11 Automatic Recording Traffic Counters	$800 Plans $10	$15,180
		DISTRICT No. 3				
		William Robinson, Dist. Engr., 301 E. Water St., Syracuse, N. Y.				
Cayuga	WS #3	Truck Weighing Station Turnout on Auburn-Seneca Falls Pt. 1, SH 500	0.20	Asp. Conc. Ty. 1A, Opt.	$700 Plans $10	$13,000
Onondaga	WS #4	Truck Weighing Station Turnout on Elbridge SH 487	0.20	Asp. Conc. Ty. 1A, Opt.	$700 Plans $10	$13,000
4 Cos. & 2 Cities in Dist. #3	FARC51-19	Installation of Automatic Recording Traffic Counters in Dist. #3 Proj. S.W.H.P. 1(8)		Installation of 9 Automatic Recording Traffic Counters	$700 Plans $10	$13,005
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Genesee	WS #9	Truck Weighing Station Turnout on Alexander-Canawaugus Pt. 2, SH 8431	0.24	Asp. Conc. Ty. 1A, Opt.	$450 Plans $10	$8,000
Genesee	WS #41	Truck Weighing Station Turnout on Crittenden-Corfu, SH 8215	0.24	Asp. Conc. Ty. 1A, Opt.	$500 Plans $10	$8,500
		DISTRICT No. 5				
		C. R. Waters, Dist. Engr., 65 Court St., Buffalo, N. Y.				
Chautauqua	WS #7	Truck Weighing Station West-Bound Turnout on Irving-Silver Creek, SH 5452	0.18	Asp. Conc. Ty. 1A, Opt.	$500 Plans $10	$9,000
Chautauqua	WS #8	Truck Weighing Station East-Bound Turnout on Irving-Silver Creek, SH 5452	0.18	Asp. Conc. Ty. 1A, Opt.	$600 Plans $10	$11,000
4 Cos. & 2 Cities in Dist. #5	FARC51-21	Installation of Automatic Recording Traffic Counters in Dist. #5 Proj. S.W.H.P. 1(8)		Installation of 10 Automatic Recording Traffic Counters	$700 Plans $10	$13,800
		DISTRICT No. 6				
		H. F. Brumm, Dist. Engr., 30 West Main St., Hornell, N. Y.				
Allegheney	WS #28	Truck Weighing Station Turnout on Bolivar-Wellsville Pt. 2, SH 8253	0.27	Asp. Conc. Ty. 1A, Opt.	$1,200 Plans $10	$21,000
Steuben	C-51-6 RC51-67	Corning City: Denison Pky. Ext. Big Flats-Gibson, SH 742	0.28	Painting Bridge	$1,000 Plans $10	$18,000
Tioga	WS #27	Truck Weighing Station Turnout on Waverly-Owego Pt. 2, SH 5168	0.38	Asp. Conc. Ty. 1A, Opt.	$900 Plans $10	$15,500
5 Cos. & 2 Cities in Dist #6	FARC51-22	Installation of Automatic Recording Traffic Counters in Dist. #6 Proj. S.W.H.P. 1(8)		Installation of 10 Automatic Recording Traffic Counters	$600 Plans $10	$11,800
		DISTRICT No. 7				
		R. F. Hall, Dist. Engr., 444 VanDuzee St., Watertown, N. Y.				
Jefferson	WS #31	Truck Weighing Station Turnout on Adams-Watertown Pt. 4, SH 5426	0.22	Asp. Conc. Ty. 1A, Opt.	$500 Plans $10	$9,000
4 Cos. & 1 City in Dist. #7	FARC51-23	Installation of Automatic Recording Traffic Counters in Dist. #7 Proj. S.W.H.P. 1(8)		Installation of 8 Automatic Recording Traffic Counters	$550 Plans $10	$10,320
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Dutchess	WS #15	Truck Weighing Station Turnout on Peekskill-Fishkill, Pt. 5, SH 5150	0.20	Asp. Conc. Ty. 1A, Opt.	$600 Plans $10	$11,000
6 Cos. & 2 Cities in Dist. #8	FARC51-24	Installation of Automatic Recording Traffic Counters in Dist. #8 Proj. S.W.H.P. 1(8)		Installation of 14 Automatic Recording Traffic Counters	$1,000 Plans $10	$18,550
		DISTRICT No. 9				
		F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
5 Cos. & 2 Cities in Dist. #9	FARC51-25	Installation of Automatic Recording Traffic Counters in Dist. #9 Proj. S.W.H.P. 1(8)		Installation of 10 Automatic Recording Traffic Counters	$700 Plans $10	$13,000
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr., Montauk Highway at Little E. Neck Rd., Babylon, L. I., N. Y.				
2 Cos. in Dist. #10	FARC51-26	Installation of Automatic Recording Traffic Counters in Dist. #10 Proj. S.W.H.P. 1(8)		Installation of 5 Automatic Recording Traffic Counters	$480 Plans $10	$8,490
Queens	VWE51-3	Van Wyck Expressway Cont. 6-C		Improvement of Grounds	$15,000 Plans $15	$280,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: September 14, 1951

Substructure For Bridges

DELAWARE RIVER
JOINT TOLL BRIDGE COMMISSION
526 Broad Street Bank Building
Trenton 8, New Jersey

Sealed proposals for the construction of the substructure for three (3) bridges over the Delaware River, between Pennsylvania and New Jersey will be received by the Delaware River Joint Toll Bridge Commission at its office, 526 Broad Street Bank Building, Trenton 8, New Jersey, until eleven o'clock (11:00) A.M., Eastern Standard Time, on the 14th day of September, 1951, at which time and place all bids will be publicly opened and read aloud.

After August 15, 1951, Instructions to Bidders, form of Proposal, form of Contract, form of Performance Bond, Plans and Specifications may be examined at the office of the Commission, above address, and copies thereof obtained upon payment of $10.00 for each set, which amount is not returnable.

The names, location and approximate quantities of major items for the three bridges are as follows:

Contract No. 101—Delaware Water Gap Bridge, between Delaware Water Gap, Pennsylvania and Warren County, New Jersey.

Dry and Wet Excavation	27,800 C.Y.
Rock Excavation	8,000 C.Y.
Concrete	18,000 C.Y.
Reinforcing Steel	1,800,000 Lbs.
Granite Facing	1,700 C.Y.
Riprap	11,000 Tons
Driving Steel Bearing Piles	52,000 L.F.

Contract No. 201—Portland-Columbia Bridge, between Portland, Pennsylvania and Columbia, New Jersey.

Dry and Wet Excavation	12,500 C.Y.
Concrete	4,700 C.Y.
Reinforcing Steel	405,000 Lbs.
Granite Facing	385 C.Y.
Riprap	1,300 Tons
Driving Steel Bearing Piles	2,300 L.F.

Contract No. 301—Milford-Montague Bridge, between Milford, Pennsylvania and Montague, New Jersey.

	Alternate A	Alternate B
Dry and Wet Excavation	3,800 C.Y.	2,900 C.Y.
Rock excavation	400 C.Y.	400 C.Y.
Concrete	5,400 C.Y.	4,700 C.Y.
Reinforcing Steel	300,000 Lbs.	268,000 Lbs.
Granite Facing	1,150 C.Y.	1,150 C.Y.
Riprap	1,300 Tons	1,000 Tons
Drilled-In Caissons		1,480 L.F.

Proposals may be submitted for the substructure for each bridge separately, for two bridges combined or for all three bridges combined.

Each Proposal must be accompanied by a certified check in the amount of not less than five (5) percent of the amount of the Proposal.

If the bidder submits Proposals for more than one contract, a single certified check in the amount of not less than five (5) percent of the largest amount of work included in a combination of proposals, will be sufficient.

All checks shall be made payable to the Delaware River Joint Toll Bridge Commission, which amounts shall be forfeited as liquidated damages if the bidder or bidders fail, within ten (10) consecutive calendar days after written notice that the bidder or bidders have been awarded the contract, to enter into a written contract with the Commission in accordance with the accepted bid, and to give a Performance Bond satisfactory to the Commission, equal to one hundred percent (100%) of total amount of contract.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work, and to the bidder whose proposal is deemed by the Commission to be most advantageous to the public interest.

DELAWARE RIVER JOINT TOLL
BRIDGE COMMISSION
By Alexander R. Miller
Chairman of Commission

OFFICIAL PROPOSALS

Bids: Sept. 5, 1951

State Police Barracks

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

General, plumbing, heating and ventilating, electric, structural steel and miscellaneous iron work in connection with new State Police Barracks at Princeton, New Jersey

and

General, plumbing, heating and ventilating, electric, structural steel and miscellaneous iron work in connection with new State Police Barracks at Bordentown, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Wednesday, September 5, 1951 at one (1:00) o'clock, E.S.T. and will be opened and read immediately thereafter.

Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

Plans and specifications, form of bid, contract and bond for the proposed work are on file and may be obtained upon application to the Director, Division of Purchase and Property, State House, Trenton, New Jersey on deposit of twenty-five dollars ($25.00) for each set; this amount to be refunded to the bidder upon receipt of same in good condition within 30 days after the award of the contract.

DEPARTMENT OF THE TREASURY
STATE OFFICE BUILDING AUTHORITY,
Walter T. Margetts, Jr.,
Chairman.

Bids: Sept. 11, 1951

Additions to Sewage Treatment Plant

Gettysburg Municipal Authority, Borough of Gettysburg, Adams County, Pennsylvania

Sealed proopsals will be received at the Gettysburg Municipal Authority Office, 141 Baltimore Street, Gettysburg, Pennsylvania, until 2:00 P.M., E.D.S.T., Tuesday, September 11, 1951 for furnishing all necessary labor, materials and equipment and performing all work for the construction of ADDITIONS TO A SEWAGE TREATMENT PLANT, and will be publicly opened and read immediately thereafter in the Borough Council Chamber at the Fire Engine House on East Middle Street, Gettysburg, Pa. Separate proposals will be received upon four parts of the project as follows:

Contract One—General Construction: Including Diversion Chamber, Grit Channel and Comminutor Structure; Control Building; Primary Settling Tanks; Primary Biofilter; Lift Pumping Station; Secondary Biofilter; Final Settling Tanks; Sludge Digester; Sludge Drying Beds; Sludge Pumping Station; Inter-Unit Piping; Road and Walks; Fencing; Specified Equipment and Appurtenances.

Contract Two—Plumbing Work: Including Domestic and Plant Water Systems, Plumbing, Domestic Indirect Water Heater and Storage Tank, Insulation, Plumbing Fixtures, Pneumatic Water System and Compressed Air System.

Contract Three—Heating Work: Including Insulation, Combination Gas and Oil Fired Boiler, Digester Circulating Water Heating System, Digester Gas System, Combustion Control System for Gas and Oil, Underground Fuel Oil Storage Tank System, and Ventilating Fans.

Contract Four—Electrical Work: Including Underground Service Feeder, Control Center, Power Distribution, Outside Underground Distribution System, Outside Lighting System, Building Lighting System, Removal of All Existing Electrical Wires, etc.

Proposals shall be accompanied by certified checks or satisfactory bidder's bonds in accordance with provisions contained in the Specifications and in amount not less than ten (10) per cent of the bid total.

Copies of the Contract Documents, including Plans and Specifications, may be seen at the office of Gannett Fleming Corddry and Carpenter, Inc., 600 North Second Street, Harrisburg, Pennsylvania, or at the office of the Gettysburg Municipal Authority, 141 Baltimore Street, Gettysburg, Pennsylvania; or they may be obtained from the first of the above stated places upon deposit of the following amounts for each set:

Contract One—General Construction— $15.00
Contract Two—Plumbing Work— $10.00
Contract Three—Heating Work— $10.00
Contract Four—Electrical Work— $10.00

Full refund will be made to actual bidders for return of one of each set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition within the same periods, will be fifty (50) per cent of the deposit.

N.P.A. controlled materials rating DO-T-8 issued for this project.

Gettysburg Municipal Authority
Borough of Gettysburg,
Pennsylvania
Gannett Fleming Coddry &
Carpenter, Inc., Engrs.
600 N. Second Street
Harrisburg, Pennsylvania

Bids: September 11, 1951

Construction of Route 6

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Route 6, Sections 2B & 3B
Construction of Route 6, Sections 2B and 3B, from Homestead Avenue to Route S-1, Boroughs of Palisades Park and Fort Lee, Bergen County. Length 0.948 mile.

Estimated:
7,037 cu. yds. Roadway Excavation
2,262 sq. yds. Pavement Excavation
11,684 sq. yds. Rein. Concrete Pavement
2,083 lin. ft. 9" x 20" White Concrete Curb
4,580 lin. ft. 24" White Concrete Island

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, September 11, 1951, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

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Draftsmen

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Consulting Engineers
State Street Building Harrisburg, Penna.

DESIGNERS AND DRAFTSMEN
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To Plan For Your Future!
PERMANENT POSITIONS

at good salaries with all employee benefits, including retirement plan. Location —Phila. Exp. on water works projects desirable but not essential. If you have had exp. on reinforced concrete and structural steel design or piping, submit record of exp., salary requirement and availability.

P-1664, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

STRUCTURAL-ARCHITECTURAL ENGINEER
MECHANICAL ENGINEER
ELECTRICAL ENGINEER

Applications solicited from men with training or experience in above, in industrial and process engineering construction.

Excellent opportunity with growing firm for executive advancement in Atlanta Home Office or newly established branches. Send typed resume to:

P-1539, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

SEARCHLIGHT SECTION

(Classified Advertising)

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The Arthur G. McKee and Company are in need of men with experience as:

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CONCRETE DESIGNERS
ELECTRICAL DESIGNERS
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Men should have experience in Blast Furnace, Steel Mill, Oil Refinery or other heavy structural design.

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Arthur G. McKee & Co.

2300 Chester Avenue Cleveland 1, Ohio

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ELECTRICAL - MECHANICAL - STRUCTURAL

Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical	Power, lighting layouts and electrical controls.
Mechanical	Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.
Structural	Structural steel and reinforced concrete.

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY
Engineers and Builders

The Ferguson Bldg. 1783 E. 11th St. Cleveland 14, Ohio
19 Rector Street New York 6, N. Y.

ENGINEERS
WANTED

The Tennessee Valley Authority wants Civil, Structural, Mechanical, Electrical and Office Engineers. The work is design and construction of large steam-electric and hydroelectric projects and transmission systems. Salaries start at $3200, $3900 and $4650 for 40-hour week. Some work is scheduled more than 40 hours and pays overtime. All jobs carry automatic within-grade increases for satisfactory service, liberal vacation leave, sick leave and retirement benefits. Design jobs are in Knoxville and Chattanooga, Tennessee. Field and office engineer jobs are at construction sites in the Tennessee Valley area and at Paducah, Kentucky.

Write the

Tennessee Valley Authority

Division of Personnel

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Heavy & Light Automatic Equipment

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Employment Service Dept.

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An expanding field with a top-flight organization.

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Wanted to train as fieldmen. Send personal resume to:

P-1783, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

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Excellent permanent opportunity for graduate mechanical or civil engineer with at least 8-10 years experience in industrial designing, building and equipment to include reinforced concrete and steel erection. Age between 35-45 years. Give resume and full qualifications in first letter. Salary open.

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Phillipsburg, New Jersey

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For concrete bridge construction, sewers, water lines, grading and drainage, bituminous paving and seal-coat. Experience in last two lines not necessary. Must be able to coordinate and supervise projects. Work located in Michigan. Salary open. All replies strictly confidential.

P-1770, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Illinois

WANTED
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(Mechanical or civil) for process plant. Experienced in heavy construction, including buildings, piping, and machinery installation.

ALSO, DESIGN ENGINEER

(Mechanical or civil) for process industry. Familiar in heavy industry plant construction, including design, equipment specifications, and machinery installations.

These positions in a modern, expanding plant in northern Ohio River valley. Attractive insurance and pension plans, desirable community, excellent opportunities for competent men.

P-1782, Engineering News-Record
520 N. Michigan Avenue, Chicago 11, Ill.

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Minimum 5 yrs. experience in foundation & reinforced concrete design. Large long-range expansion program. Good salary, liberal benefits program. Location of work Detroit, Mich. Qualified applicants write.

DETROIT EDISON CO.
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REPLIES (Box No.): Address to office nearest you
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CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

SENIOR ESTIMATOR

Oil Refinery or Chemical Plant Experience

Man with responsible experience in oil refinery or chemical plant estimating. Detailers or take-off men need not apply. New York city location. Major petroleum refinery engineering company. Unusual opportunity for right man. Require experience resume in detail and past earnings record. Our employees know of this ad.

P-1715, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

ENGINEERS

Experienced or trained in airport paving and drainage, mechanical, electrical, architectural, water and sewer plants. Advancement for right men in Atlanta or Houston Offices. Send typed resume to

P-1542, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

CIVIL SERVICE

STRUCTURAL ENGINEER to supervise design and construction of new bldgs. including specifications, estimates, bids, contracts, modifications. Require extensive experience in const. of commercial or institutional bldgs. Permanent position, liberal benefits. Write Employment Bureau, Room 17, Adm. Bldg., Mpls. Campus, University of Minnesota, Minneapolis, Minnesota.

POSITIONS VACANT

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation, group insurance, good working conditions. Only top quality men. Send complete written information. Bristol Steel & Iron Works, Inc., Bristol, Virginia-Tennessee.

SANITARY ENGINEER wanted by established manufacturer of sewage treatment equipment. Must be experienced in actual design of sewage treatment plants. Position may offer opportunity in sales. Chicago area location. In reply give age, education, salary requirements. Write P-1575, Engineering News-Record.

POSITIONS VACANT

STRUCTURAL DESIGNERS and Draftsmen for indeterminate Reinforced Concrete and Steel structures, and Architectural designers and Specification Writer wanted by Baltimore consultant. Good salaries, paid overtime and vacations. State education, detailed experience, tentative reporting date and salary requirements in first letter. Reply P-1613, Engineering News-Record.

ESTIMATOR — THOROUGHLY familiar with quantity survey work on large building construction projects. One accustomed to taking off quantities for Carpentry, Concrete, Forms, Brickwork, Partitions, Excavation, Etc. Advise in confidence, experience, when available. Salary desired, age. Fleisher Engineering & Construction Co., 936 Ellicott Square, Buffalo 3, N. Y.

GRADUATE ACCOUNTANT having responsible experience in Main Office of a building contractor who wants opportunity and future with large established construction firm. Must be capable, industrious and clean record. Reply in detail P-1686, Engineering News-Record.

GRADUATE CIVIL Engineer about 35. Major responsibilities and long range development projects involved. Experienced in highway and runway pavement test section planning and supervision, instrumentation for measuring strains and deflections, data and design analysis, and report writing. Salary open. Give resume of education and experience. Transportation Development Section, Portland Cement Association Laboratories, Skokie, Illinois.

ENGINEER, CIVIL or Mechanical, experienced, for office or field work. Write P. O. Box 1166, Roanoke, Va.

HIGHWAY AND BRIDGE Designers and Draftsmen needed for work in Rhode Island area. Send experience record to—P. O. Box 814, Providence, Rhode Island.

STRUCTURAL ENGINEER: Experienced in steel and reinforced concrete design, for large, well established, Architect-Engineer office in Pacific Northwest. Must be capable of assuming responsibility for design of commercial and industrial buildings. P-1738, Engineering News-Record.

LARGE COPPER Company Chile, South America requires Young Mechanical Engineering Graduate who has had some shop experience in the repair of diesel electric locomotives and Young Civil Engineering Graduate with some experience in maintenance of track and track equipment for their Railroad Department. Company makes a three year contract with transportation paid both ways and salary while traveling. In reply give complete details. P-1755, Engineering News-Record.

MECHANICAL ENGINEER Wanted for Plumbing; Heating, Ventilating and Process Piping Estimating. Must have initiative and be capable of taking complete charge of Estimating Department. An attractive proposition can be offered to a qualified man, preferably under 40 years old. In reply give age and past experience in full. P-1779, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

SALES ENGINEERS (2)—Age 38-45. Excellent opportunity for permanent connection with one of the largest general building contractors in U. S. Must be Engineering graduate (C.E.). Proven background in structural design, with some field construction supervision experience, personable, and with construction sales experience. Send reply to SW-1622, Engineering News-Record.

EMPLOYMENT SERVICE

WANTED—ENGINEERS, Designers, Draftsmen-Structural, Piping, M.E., C.E., E.E. and Industrial, also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

ESTIMATOR: FIFTEEN years experience U.S. and foreign. Thoroughly competent all phases construction of oil refineries, chemical plants, and power houses. Speak Spanish, some Portuguese. PW-1706, Engineering News-Record.

CIVIL ENGINEERING Graduate, 30, 4 years experience field and office construction, highways and industrial layout, also plans survey, quantity estimating and drainage. Desire position with Engineering or Construction firm in East. PW-1774, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, concrete pipe manufacture, considerable experience, machine and cast pipe. PW-1712, Engineering News-Record. 330 West 42nd St., New York.

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CONSTRUCTION MAN with Engineering and Construction experience wishes foreign construction or allied work. Experience includes grading, buildings, highways, and some railroad and airport construction. 15 years in Spanish Countries, single, age 64, now employed. PW-1740, Engineering News-Record.

ASS'T SUPT., Cost Engr., age 36, married, 3 children, 15 years experience in Timekeeping, cost distribution, purchasing, expediting, take off, Layout, and office management on Brick, Stone, Concrete, and Steel in the Institutional office and industrial building fields. Immediate available. Salary $150.00. PW-1732, Engineering News-Record.

MECHANICAL ENGINEER. Ten years in architectural and consulting offices on all phases building mechanical work. Registered graduate. Available October, PW-1772, Engineering News-Record.

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CONTRACTORS EXECUTIVE available as assistant to top man on large construction, possibly joint-venture where broad construction experience and wide knowledge of equipment, methods and personnel is valuable. Licensed C.E. Can get new business, handle customer contracts, public and labor relations. PW-1795, Engineering News-Record.

ELECTRICAL ENGINEER. Twenty-eight years experience; distribution, powerhouse, industrial. Mostly field. Some design, also industrial mechanical experience. Forty-nine, single, free to travel. Interested in permanent employment only. Prefer south or west. Employed. PW-1790, Engineering News-Record.

CIVIL ENGINEER—28 years well rounded experience in construction and design of heavy construction of varied types incl. water front work desires top level position. PW-1798, Engineering News-Record.

ELECTRICAL CONSTRUCTION Executive, 30 years experience in electrical contracting and engineering. Full charge many large projects leading eastern firm. Past two years, V.P.-Gen. Manager. Registered Electrical Engineer & Licensed Electrical Contractor, State of Calif. Desires permanent position, south east U. S. or Calif. PW-1803, Engineering News-Record.

ELECTRICAL DRAFTSMAN and Estimator. Age 30, married, energetic, will relocate. Commercial and Industrial layout experience. Commercial, Industrial and Public work contracting experience. PW-1800, Engineering News-Record.

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Experienced general construction man seeks General Contractor or Company requiring services of a construction manager for large projects or joint ventures; thoroughly familiar with administration of government contracts. Foreign or domestic. Highest references.

PW-1573, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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PW-1756, Engineering News-Record
330 West 42nd Street, New York, New York

NEW FITS POCKET HANDY
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By W. A. Thomas, Consulting Engineer

An aid to quick roughing out, detailing or checking, project costs—1951 unit prices, labor and materials. Arranged in approximate order of construction from ground up. USED ON ATOMIC ENERGY PROJECTS. Illustrations such as hand of doors, waterproofing methods, composite block-brick construction,—fastenings—screws—anchors—blivets—wire fence—etc., with stock sizes. Special treatment of piping, inside, process, outside, buried water and gas lines, fire service, cross country lines, brine piping, insulated lines, etc. Serves as useful reminder list. This small booklet made compact for quick utility contains many practical aids for designating and ordering materials. Use it 10 days—return it if not satisfied—money refunded. Price $2.00 Copy.

W. A. THOMAS
2742 Philadelphia Ave. Pittsburgh 16, Pa.

POSITIONS WANTED

CONSTRUCTION EXECUTIVE, Contact Man, Administrative Engineer, Administrative Architect, Project Manager, Public Relations and New Business Executive. 24 years experience in general contracting, architecture and architectural-engineering. Large Projects. Leading firms. Years of experience in full charge of building design and construction. Licensed. Graduate Engineer. PW-1567, Engineering News-Record.

ENGINEER, MEM. A.S.C.E., age 48, 25 years building construction experience desires position as Field Representative for Engineering or Architectural firm. PW-1651, Engineering News-Record.

ELECTRICAL SUPT. A-1—Available soon. 30 years experience large and small industrial and commercial projects. Field Engineering-Purchasing-Electronic Controls. PW-1552, Engineering News-Record.

CONSTR. SUPT. 20 yrs. all types heavy construction. 12 years foreign. Prefer foreign contract. PW-1809, Engineering News-Record.

ASST. PROJECT MANAGER-Office Manager-Controller. Prime, Sub, and Joint-Venture accounting. C.P. FF., unit price and lump sum contracts. Handled 20 million dollar yearly volume. College grad. Will relocate. PW-1550, Engineering News-Record.

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Electrical Engineer
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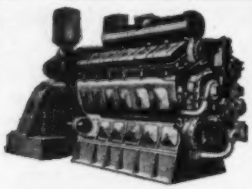

A PARTIAL LISTING OF OUR INVENTORY

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937.5	General Motors	12-567	1080	720	312	Clark	MD-4	375	327
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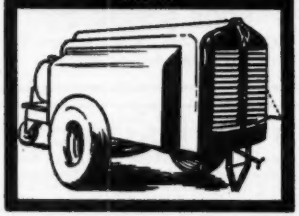

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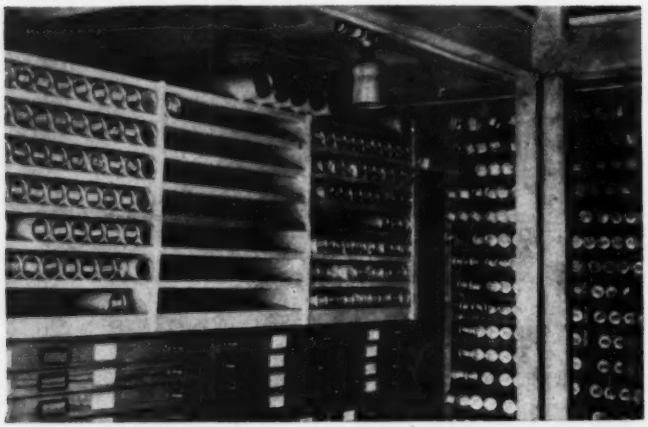
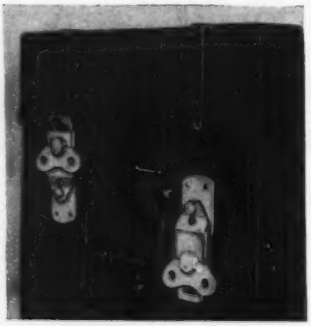


Fire-detector actuates carbon dioxide cylinders

One of the most recent installations for protecting vital records from fire was that done for Canadair Limited at its Cartierville airport where engineering vaults comprising a total of 17,372 cubic feet were fitted with twenty-nine 75-lb. cylinders of carbon dioxide connected to a series of ceiling type Kidde fire detectors. Many specs nowadays include that ample fire protection be built into storage vaults. With this system, any sudden rise of temperature within the room causes heat-sensitive detectors to automatically release the pressurized gas through piping and Multijet nozzles. This inert gas completely floods the area, excluding all oxygen, and simultaneously sets off an alarm and stops any ventilating machinery. As an added safety feature, the system can be actuated manually by pull boxes outside the vault. WALKER KIDDE & Co., 40 E. 34TH STREET, NEW YORK 16, NEW YORK.



Steel fastening device

A new fastener, called Link-Lock, opens and closes with a twist of the fingers, yet exerts heavy pull-down pressures. As shown in the picture above, the vertical-sliding latch is connected through a pin to a disk rotated by a wing nut, similar to a crank and shaft arrangement. As the disk rotates past 90 deg., the pin passes dead center and locks the latch into position. Because there are no springs, the manufacturer states it will withstand heavy impact or drops, and is especially secure in sub-freezing temperatures. Designed for 1,000 lb. tension loading, its wing nut can be replaced with a bolt or screwhead for semi-permanent fastening. SIMMONS FASTENER CORPORATION, ALBANY I, NEW YORK.

Soniscope detects flaws and cracks in concrete

Soundness of concrete can be tested and cracks or voids discovered by using a new ultrasonic detector called Soniscope, developed by the Hydro Electric Power Commission of Ontario. Composed of connected transmitter and receiver, a central control unit measures the time it takes to send an ultrasonic wave through the concrete. With thickness of the concrete and time as known factors, it's a simple matter to compute the speed of the wave, which indicates the soundness of the material. As the number of imperfections increase, the wave becomes slower. MCPHAR ENGINEERING CO., LTD., 36 CRANFIELD RD., TORONTO.

Granite plug drill bit sets new record

Up in Barre, Vermont recently, at the Rock of Ages quarry an interesting experiment took place which resulted in a new speed record of 13 seconds per hole, on the average, for wet drilling of ¾-in. holes, 3½ in. deep. Tests were made in different locations with regular quarry teams and L 27 Joy Manufacturing Co. Self-Rotating pneumatic hammers. In early stages drilling was done dry, but dust conditions hastened a change to water at which time a hole was drilled longitudinally through the bit itself. Since the tip is carbide, care must be exercised to turn on the water before drilling. Wetting it after heating would crack it. The self-rotating hammer precluded the need for manual twisting and helped establish the record. The company provides clear easy-to-understand instruction sheets on use and regrinding of the THUNDERBOLT Carbide-tipped Granite Plug Drill Bit, as well as grinding templets. NEW ENGLAND CARBIDE TOOL COMPANY, INC., 60 BROOKLINE STREET, CAMBRIDGE 39, MASSACHUSETTS.

(*Continued on page 104*)

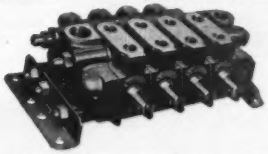
Lull Traveloader

Lull Shoveloader

MORE Cost-Cutting APPLICATIONS OF VICKERS HYDRAULICS

Vickers Hydraulic Equipment plays an important part in the performance records that are being reported on these two popular types of materials handling machines. Illustrated below are representative Vickers units used by Lull . . . all are built especially for mobile equipment. These hydraulic controls offer many advantages to both the equipment user and the manufacturer. They assure quick and accurate response to the operator with negligible physical effort . . . they provide inherent overload protection against abuse of equipment . . . they simplify design and save space. Ask the nearest Vickers Application Engineer to call for a discussion of your product improvement problems.

Vickers Steering Booster provides hydraulic power instantly (with no more effort than a "trigger pull") to meet any steering requirement for better maneuverability of loaders with heavy loads on steering axle.



Vickers Multiple Unit Valves consist of individual operating valve sections, assembled in almost any combination (up to 10 sections) for various hydraulic control functions. Vickers exclusive porting arrangement and fully balanced design provides sensitive positioning under actual operating conditions . . . unaffected by surges.

VICKERS Incorporated
DIVISION OF THE SPERRY CORPORATION
1496 OAKMAN BLVD. • DETROIT 32, MICH.

Application Engineering Offices: ATLANTA • CHICAGO • CINCINNATI CLEVELAND • DETROIT • HOUSTON • LOS ANGELES (Metropolitan) • MILWAUKEE NEW YORK (Metropolitan) • PHILADELPHIA • PITTSBURGH • ROCHESTER ROCKFORD • ST. LOUIS • SEATTLE • TULSA • WASHINGTON • WORCESTER

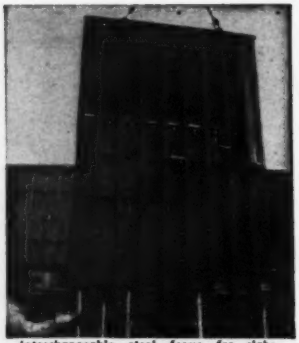
ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

ATLAS SPEED SYSTEM OF CONCRETE FORM CONSTRUCTION

Cuts Down Slab and Wall Form Costs

CUTS DOWN Form Costs — Steel Forms give you more uses—Many times more than wood. . . . Can be reused indefinitely, year after year on job after job. . . . Many contractors report 400, 500 and more.

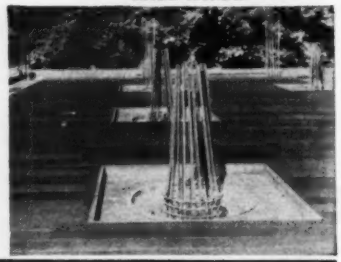
CUTS DOWN Labor Costs — STEEL Speed Forms go up faster. . . . Easily assembled with wedge bolts—No special fastenings used. Lightweight yet ruggedly built.



Interchangeable steel forms for slabs, walls, circular tanks, tunnels, manholes, modular structures.

SAVES TIME—A new technique —Forms can be set up, stripped, cleaned, moved and reused in half the time of other forms.

Get the complete story. Glad to have a representative call and give you layouts, cost studies, recommendations and prices. Write Dept. *RN*.



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Exploration for coal and other mineral deposits. Foundation test boring and grout hole drilling for bridges, dams and all heavy structures. ***Core Drill Contractors for more than 60 years.***

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New products . . .

Cement coating protects masonry against dampness

This copperized hard cement coating, called COPROX, is recommended for use on masonry block, cinder block, clay tile, brick, concrete, asbestos shingles, etc. and is manufactured in colors of buff, gray, green and rose as well as white. Other claims by the manufacturer include: no hairline cracks, dimensional changes or further chemical modifications; withstands very high degree of mechanical shock and higher hydrostatic pressures. They warn not to mix or apply the powder-water combination at a temperature less than 60 deg F. and advise working on shady side of structures to prevent the sun's drying it too quickly. The maker, upon request, will furnish a factory technical expert to supervise occasionally the mixing and application, at no expense to the contractor. COPROX INC., 1270 SIXTH AVENUE, NEW YORK, 20, N. Y.

New motors for heavy dirt, grit conditions

Available in ratings of 1, 1½, 2, 3 and 5 hp, this new line of single-phase capacitor motors was developed for use where extra severe conditions of dirt, grit or moisture are encountered. Being capacitor motors, they have no brushes or commutators to interfere with radio transmission or reception. More easily accessible grease fittings simplify lubrication problems. All run on 115/230-volt, 60-cycle power supply except the 5 hp size, which uses 230 volts only. GENERAL ELECTRIC COMPANY, SCHENECTADY, NEW YORK.

Arc drive control for rectifier welders . . .

permits the operator to adjust the arc characteristics of the welder to suit particular jobs. The device operates automatically, providing an extra surge of welding current at the exact moment the arc becomes shorted, either by direct contact between the electrode and the work or by a globule of molten metal bridging the arc gap. This extra surge prevents arc outage or sticking of the electrode and helps clear the arc path. Violent or prolonged over and undershoots, characteristic of rotating-type welding generators, are eliminated, the manufacturer claims. A self-heating thermostat prevents overheating due to sustained short circuits of the welding terminals. WESTINGHOUSE ELECTRIC CORPORATION, BOX 2099, PITTSBURGH 30, PENNSYLVANIA.

(*Continued on page 106*)

Barbara Fritchie's house in Frederick, Maryland as it appeared in the year 1866

The City of Frederick has a cast iron water main in service that was laid in 1845, seventeen years before Barbara Fritchie's flag-waving defiance of "Stonewall" Jackson's army. The changing channel of a creek undermined her humble home, now replaced in replica to serve as a museum. Yet Frederick's 106-year-old cast iron main, like many others, has survived the changing conditions of a century. Shock-strength, beam-strength and crushing-strength are inherent in cast iron pipe. Because of these strength-factors and effective resistance to corrosion, cast iron water and gas mains, laid over 100 years ago, are still serving in the streets of 38 cities in the United States and Canada. **United States Pipe and Foundry Co., General Offices, Burlington, N. J. Plants and Sales Offices Throughout the U. S. A.**

U.S.
cast iron
PIPE
FOR WATER AND NATURAL GAS

NUMBER NINE OF A SERIES

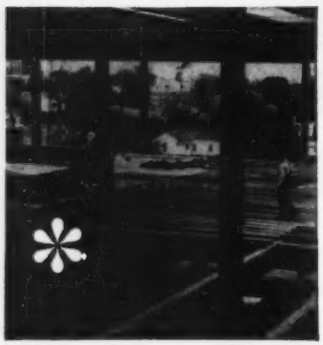
"Service and Quality Unusually Good,"

SAYS

SPRINGS COTTON MILLS

*

Addition being built to Plant No. 1—Springs Cotton Mills, Lancaster, S. C. Building was completed in 1950.



● When he placed an order for more than 580,000 board feet of Koppers Pressure-Treated Lumber, Mr. E. L. Scruggs, Vice President of the Springs Cotton Mills, expected good service. And he wasn't disappointed.

Here's what he wrote after the new addition to his plant had been completed: "We wish to tell you that this is one of the few large lumber orders that we have ever placed which was completed on time and without a single rejection. We consider the service rendered and quality of material unusually good."

Koppers makes every effort to deliver pressure-treated lumber when promised, thus doing away with costly delays in construction. And Koppers, by chemical impregnation, changes the characteristics of wood so that it will stand up under *your* particular conditions. For example, Koppers can make wood resistant to decay, termite attack, marine borers —can even make it fire-retardant if desired.

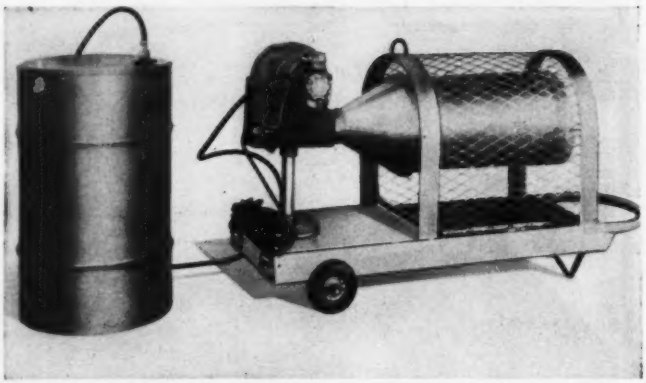
Get in touch with us. We will gladly furnish quotations on Koppers Pressure-Treated Wood.

KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

KOPPERS PRESSURE-TREATED WOOD

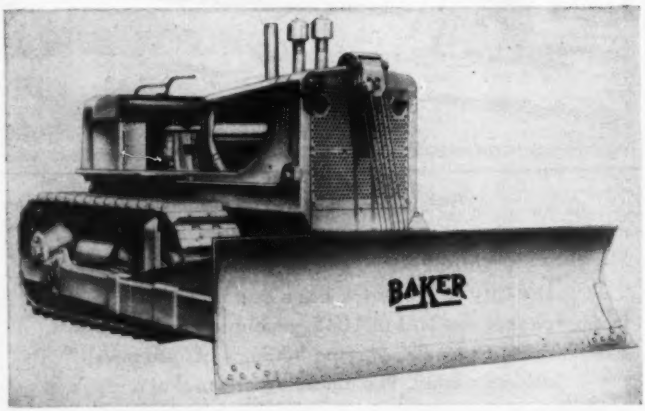
KOPPERS

New Products . . .



Portable oil heater produces 189,000 BTU/hr

Demanding only regular 110-volt, 60-cycle current and No. 2 fuel oil, this ECO-TEMP portable oil-fired radiant heater is usable in a number of different ways on a construction job. With a rapid rise to maximum temperature and wide effective heat area, the manufacturer recommends if for drying plaster, paint, concrete; thawing coal, sand, machinery parts; warming up equipment for easier starting during cold weather; space-heating new construction, shanties, repair shops. Fuel is drawn through any length of hose from a drum at a rate of 1.35 gph. Measuring 48 in. long, 18 in. wide and 31 in. high, the entire rig weighs 175 lb and can be pushed like a wheelbarrow. Two men can readily carry it from floor to floor. ARTHUR C. BAUMANN, DEPT. T, 7011-21 GRAYS AVENUE, PHILADELPHIA 42, PENNSYLVANIA.



New cable-control mountings for bulldozers

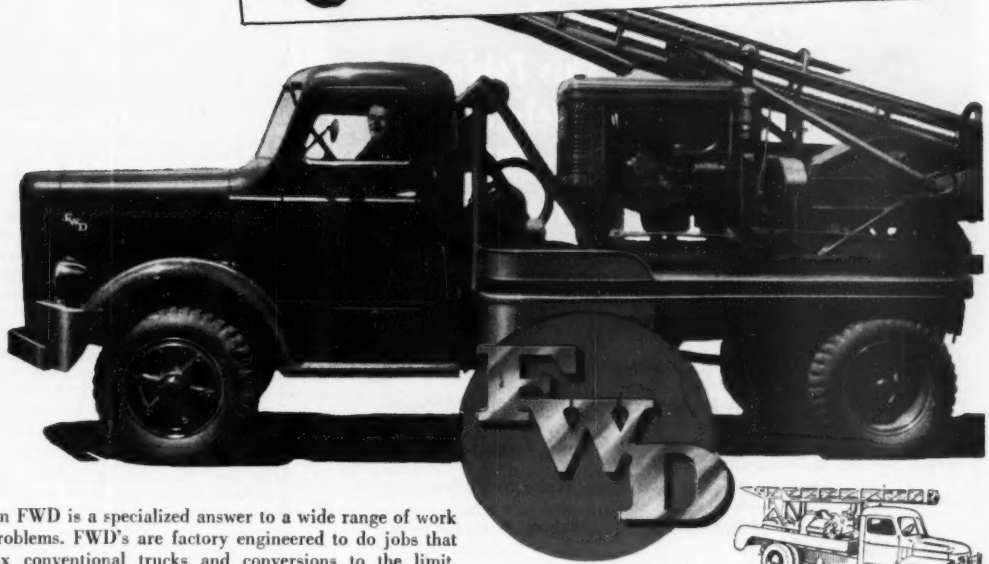
Redesigned to match the new Allis-Chalmers HD-9, HD-15 and HD-20 crawler tractors, cable-control mountings on Baker bulldozers, gradebuilders and root rippers provide more visibility, easy interchangeability, improved protection for cables and radiator and new push beam power tilt. Located under the fender, close to the side of the tractor, the cable is protected from brush, tree limbs and other obstacles. The built-in radiator guard with perforated grill protects the radiator core from rocks and roots, etc. and is an integral part of the cable frame.

By removing only one bolt on each side, a set of wedges and by detaching the lower sheave block out front, dozer, ripper and gradebuilder can quickly replace one another. New power tilt on push beam eliminates need for prying or jacking it. Reverse tilt of the moldboard is accomplished by power, too, instead of with manual effort. BAKER MANUFACTURING COMPANY, SPRINGFIELD, ILLINOIS.

Geophysical men choose more than a truck when they choose FWD

FWD's give me more productive hours on the job
. . . less "down-time" . . . plus longer life for my truck dollars.

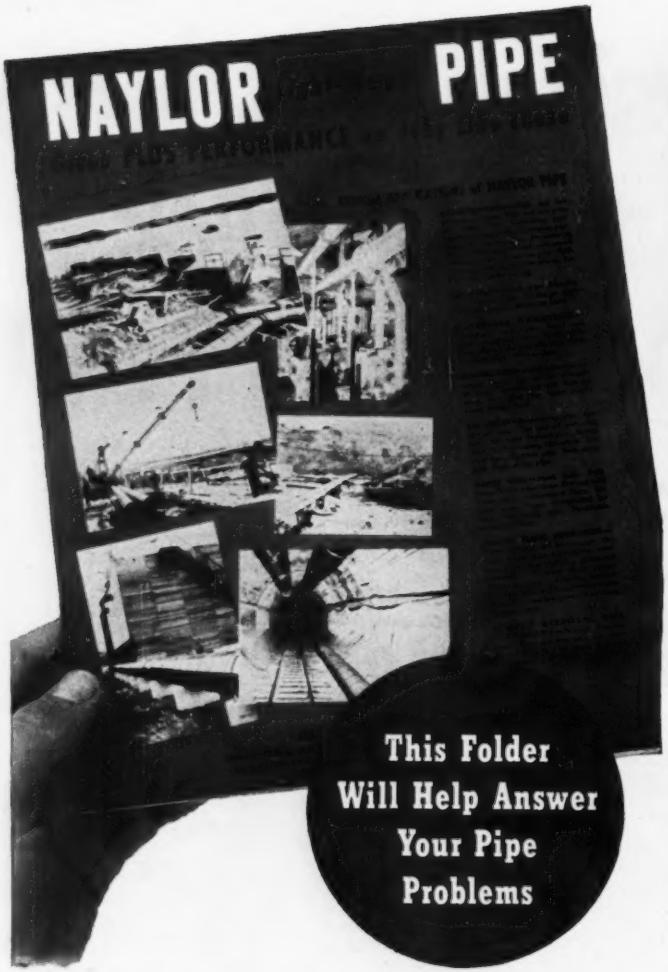
We get to locations faster — SAFELY
. . . thanks to FWD's extra traction and better distribution of weight and power.



An FWD is a specialized answer to a wide range of work problems. FWD's are factory engineered to do jobs that tax conventional trucks and conversions to the limit. FWD's *extra traction* makes easy going on hard, smooth-surface, or soft, rough terrain . . . assures greater safety. Balanced distribution of load and power minimizes wear . . . makes FWD'S last up to twice or more as long. Get the full FWD story. Write The Four Wheel Drive Auto Co., Clintonville, Wis. Canadian factory: Kitchener, Ontario.

America's Foremost Heavy-Duty Truck

In the world-wide search for oil — you'll see more and more FWD's like these — equipped with drill rigs — serving as water carriers — mounting instruments — hauling explosives. Models range from 14,500 to 60,000 lbs, GVW — 4 and 6 wheel drive.

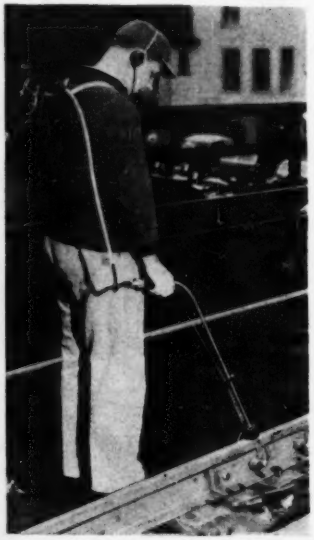


To show where lightweight pipe can be used to best advantage in your field, Naylor has prepared this handy folder. It gives you helpful specifications on Naylor pipe, fittings, flanges and connections in concise form. Write today for your copy of Bulletin 507 . . . without obligation.

NAYLOR PIPE

Naylor Pipe Company, 1248 E. 92nd St., Chicago 19, Ill.
New York Office, 350 Madison Avenue, New York 17, N.Y.

New products . . .



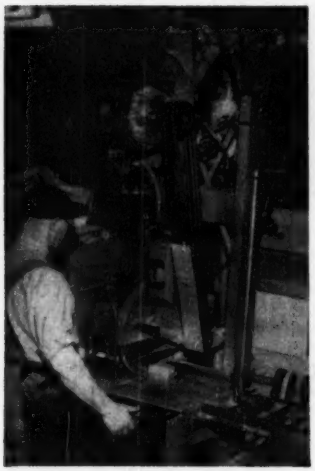
Steel flaw detector

A new ultrasonic flaw detector, originally designed for testing railroad rail in track, is expected to find numerous industrial applications, especially for testing other steel and aluminum parts with uniform cross-section. The Audigage Flaw Detector employs ultrasonic resonance to generate a tone in the headphones of the operator. A perfect rail causes resonance at a frequency reflected in a 1000-cps tone in the headphones; cracks or other flaws are revealed by a distinct change in pitch of the audio signal. One control is all it has—a micro-switch on the handle. All other controls are set prior to testing and require no adjustment. Wrapped in its weatherproof carrying case, it weighs 12 lb. complete. Power is supplied by batteries. Branson Instruments Inc., 430 Fairfield Avenue, Stamford, Connecticut.

Neoprene on paper

After three years of experimenting and a million dollars worth of expenses, Du Pont has developed a new, economical way to add its synthetic rubber, neoprene to paper. Instead of coating or saturating the finished paper as in the past, the neoprene is added in latex form to the pulp during the paper-making process. The result is several low-cost papers, says the manufacturer. Outstanding advantages are wet strength, chemical resistance and improved wear. One product under development is a porch rug

woven of twisted neoprene paper with excellent wear and abrasion resistance. One manufacturer of plastic wall tile has replaced the asphalt saturated paper which forms its backing material and replaced it with neoprene treated paper. He claims it's more pliable and easier to install in cold weather. In industrial field tests neoprene treated paper has undergone severe tests in such applications as gasket paper, multi-wall paper, box board and filter paper. E. I. DU PONT DE NEMOURS AND COMPANY INC., WILMINGTON 98, DELAWARE.



Air control for swing saws

A millman who works with a swing saw has to line up his stock, then hold it firmly with one hand while he swings the blade over it with the other. Now by drilling four holes for installation on any Heston and Anderson rig, he can quickly install an Air Operating Unit which can automatically move the saw forward at a predetermined speed. It can be set to travel only the required distance to cut off the stock; then returns to its position behind the guide rail, leaving the table clear for removal and reloading. Movement is controlled by a lever or button at the operator's fingertip. Even if this lever or button is held, movement is limited to one cycle and the unit will not receive another impulse until it has completed its swing and returned to rest. Fatigue factor is almost completely removed, since the carpenter or bricklayer doesn't have to expend any effort to move a wood or masonry blade. HESTON AND ANDERSON DIVISION, SAINT PAUL FOUNDRY AND MANUFACTURING COMPANY, FAIRFIELD, IOWA.

New Product Briefs

Rapid estimator for air express rates consists of two superimposed circular dials. Distances vary from 249 to 2,350 mi; weights are marked in 1-lb graduations to 20 lb, then 40, 50, 100 and over; total costs shown is for door-to-door delivery in airport cities by **Railway Express Agency, Inc. (and scheduled airlines).** Example: 59 lb traveling up to 749 mi—$12.50. Contact their Traffic Dept. at 230 Park Avenue, New York 17, N. Y.

Wooden cabinets, prefabricated in eight sizes, are made of ¾-in. knot-free hardwood with ¼-in. stock for sliding doors and adjustable shelves in cabinet. Called "Cab-Units" and made by **Federated Industries,** 129 Lexington Ave., New York 16, N. Y., they can hang on wall or stand on floor. Front drop leaves are optional.

Bearings shipped to the armed forces for materiel are subjected to severe climatic and storage conditions as well as rough handling. Moisture, dirt, salt water, etc., all have damaging effect. **Timken Roller Bearing Co.,** Canton, Ohio, is packaging theirs in metal cans which they believe can stand up under worst conditions for ten years. New type of packaging will undergo severe tests before being offered to Uncle Sam.

Wearers of hard hats out on the job will be pleased to hear of a new **sponge rubber shock-absorbing pad** that may be attached to their helmets by merely pressing the afixed self-adhering strip firmly against the hat under the headband. Manufacturer, **E. D. Bullard Co., 275 Eighth Street, San Francisco 3, California,** says the sizing features of the safety hats are retained, and standard headband assemblies may be used.

A safety switch lock has been installed on the new lightweight models produced by **Beaver Pipe Tools Inc. of Warren, Ohio** which makes it impossible to start the machine until the chuck wrench has been removed from the chuck and placed in its holder. This feature replaces the old style wrench ejector which threw out only special types of wrenches.

Automatic ring packing, called "Unicepac" is offered in various compositions to suit needs of water, steam, air, oil, gas, vacuum conditions. Available for shafts ⅜-in. diameter and up, it is furnished in sets of endless or split rings by **Johns-Manville,** 22 E. 40th Street, New York 16, N. Y.

announcing the SPECIAL FALL SURVEY OF CONSTRUCTION COSTS

to be published in the

November 1st, 1951

issue of

ENGINEERING NEWS-RECORD

In order to keep its readers abreast of the changes brought about in construction economics by control legislation and by the swing into mobilization, the editors of Engineering News-Record will present an analysis of what has happened since the publication of the Costs and Trends Yearbook (March 29th).

A 22" x 32" COLORED WALL CHART DEPICTING TRENDS IN CONSTRUCTION COSTS WILL BE INCLUDED WITH THIS NOV. 1st ISSUE.

Single copies, including chart, $2.00

Wall Chart of Construction Cost Trends, $1.00 when purchased separately.

1324 feet of 58 in. by 36 in. 12-ga. Toncan Iron Corrugated Metal Arch-Pipe installed as a storm sewer in Kansas City, Kansas.

Manufacturers of Toncan Iron Drainage Products

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DOMINION METAL & CULVERT CORP.
ROANOKE, VA.

EATON METAL PRODUCTS CORP.
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HUTCHINSON, KAN.

EATON METAL PROD. CO. of MONTANA
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EMPIRE STATE CULVERT CORP.
GROTON, N. Y.

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WYATT METAL & BOILER WORKS
DALLAS, TEX.
HOUSTON, TEX.

For faster flow in shallow ditches . . .

TONCAN IRON®

CORRUGATED METAL ARCH-PIPE

Reason Why No. 1: Its low, wide arch provides full capacity flow in shallow ditches . . . or where lack of headroom prevents use of full round pipe. Water level is held low . . . ponding is eliminated.

Reason Why No. 2: Toncan Iron has the highest rust-resistance of any ferrous material in its price class. It is an *ALLOYED IRON* . . . contains twice as much copper as copper-bearing steels and irons—PLUS the proper amount of molybdenum to make the copper most effective.

Reason Why No. 3: Toncan Iron Corrugated Metal Arch-Pipe has the strength to support heavy loads . . . the flexibility to resist vibration, earth settlement, weather changes, rough handling.

See your nearest Toncan Iron Manufacturer—or write us.

REPUBLIC STEEL CORPORATION • GENERAL OFFICES • CLEVELAND 1, OHIO

Toncan Copper Molybdenum Iron Drainage Products include:
Corrugated Metal Pipe • Perforated Corrugated Metal Pipe • Sectional Plate Pipe
Sectional Plate Arches • Corrugated Metal Arch-Pipe • Sectional Plate Arch-Pipe
Corwel Subdrainage Pipe • Bituminous Coated and Paved Pipe

MANUFACTURERS' PUBLICATIONS

Prestwood—provides smooth, finished exposed concrete surfaces, when applied to inner form faces. It is made of wood fibers and, unlike wood itself, is grainless, knotless, moisture resistant and extremely tough. Structural form board, ¼-in. thick, and form liner, ⅛-in. thick, come in 4 x 12-ft sheets with a greater specific gravity than hard maple. Its advantages and economies are described in a 10-page booklet which shows clear-cut pictures of the product used in column and slab form work. Ask for Concrete Form Prestwood booklet. MASONITE CORPORATION, 111 W. WASHINGTON STREET, CHICAGO, ILLINOIS.

Transit mixers—This bulletin details the features and improvements in the Rex Horizontal and Adjusta-Hite Moto-Mixers with ample illustrations. Included are their chain drives for drums, transmission details, drum data, mounting and spouting info and discharge mechanisms. Also a description of the new pivot point on the axis of the model with adjustable discharge height. This has been moved forward, more directly under the load, to reduce frame stresses and allow weight reduction. Bulletin 51-29. CHAIN BELT COMPANY, DEPT. PR, 1600 W. BRUCE STREET, MILWAUKEE, WISCONSIN.

Perimeter heating—is a comparatively new form of heating that attacks heat loss at its principal source—outside walls and windows. It combines forced warm air connection heating with partial floor radiant heating. This easy-reading manual runs to 36 pages and explains advantages of perimeter heating principally for builders and heating contractors. Layout and installation plans are included for slab floor homes, crawl space homes and basement homes. Called the "Perimeter Heating Engineering Manual," it is obtainable for 75 cents from THE LENNOX FURNACE COMPANY, MARSHALLTOWN, IOWA.

Arc welding—First issue in Volume VIIJ of "Hobart Arc Welding News" is off the press and available for anyone interested, consisting of 16 pages of interesting photos, articles, tips, etc. from all over the country. Many of the articles feature time- and money-saving applications that were sent in by readers. HOBART BROTHERS COMPANY, HOBART SQUARE, TROY, OHIO.

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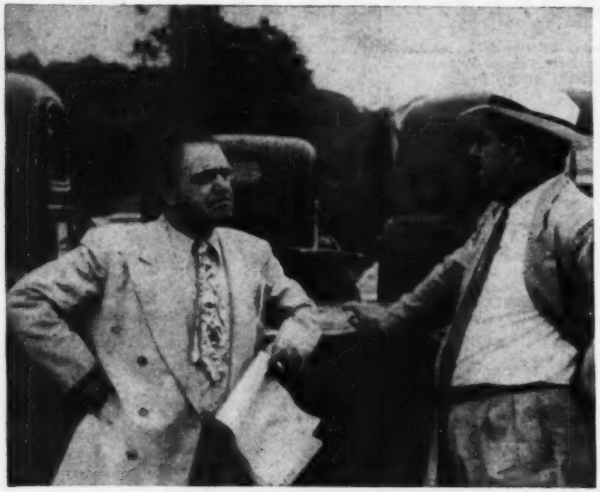


"FOR $7,600?", screamed Smith. "Hell, No! It's on our books for 14½. That's a wonderful piece of construction machinery." Nate Lish (left), president of Miami's Lish Equipment Co. had just made the offer. (Photo by Bob Isear)

Auction sale at Manassas

It had all the ingredients of a real old-fashioned auction. There was the owner, O. R. Smith, boss of Smith Contracting Corporation, Fort Worth, Texas pipeline outfit. There were the offered items—$1,500,000 worth of construction machinery and equipment. There was the usual hustle and bustle of the crowd of contractors, equipment dealers, and truckers from all over the eastern U. S. as well as farm folk from in and around Manassas, Virginia. There were the auctioneers—a father and son combine from Warren, Ohio.

But there was a catch to the whole thing—a fly in the ointment—a common gripe.

At the top of each bidder's catalog and on each and every piece of equipment was an information and instruction card that said in boldface type that all high bids were subject to subsequent acceptance or rejection by Smith. He would notify all high bidders by telegraph within three days.

• **Lots of planning**—For two and a half months before, the Hetz Auction Sales of Warren, Ohio had been working on the plans and preparations for this biggest auction of its kind ever held. They prepared the equipment, advertised in engineering magazines and mailed out 30,000 pieces of literature to every major contractor east of the Mississippi, equipment dealers and distributors, inviting them to look the equipment over, see it demonstrated if desired, and offer a bid on August 7 at ten in the morning.

Lots varied all the way from bundles of welding rods and internal line-up clamps to TD-24 tractors and huge Buckeye ditchers. Each bidder registered with the auction clerk and deposited 25% of his ancipated total bids, in the form of cash, company or registered check, or company purchase order.

Each bidder received a paddle with his number on it, thus eliminating the time normally required to record bidders' names and companies. In this way, many contractors remained anonymous.

• **An auction?**—As each prospective bidder became aware of the three-day acceptance or rejection deal, there was a great hue and cry. "You can bet that I'd never have driven from Kansas if I thought this was the sort of dealings we'd get," said one. Another, complaining to a friend, said: "Suppose I bid high on a trailer truck—then I won't bid on any others, and may come to find out that Smith doesn't like my offer and I've made the trip for nothing. If I figure he won't let the rig go for that price and bid high on another, I have no way to back out, and may be committed to buy both of them. This is a helluvanauction."

"This ain't no auction," was the sympathetic reply. "O. R. just wants to sound us out to find out what we think it's worth. In fact, he can junk the whole idea if he's a mind to."

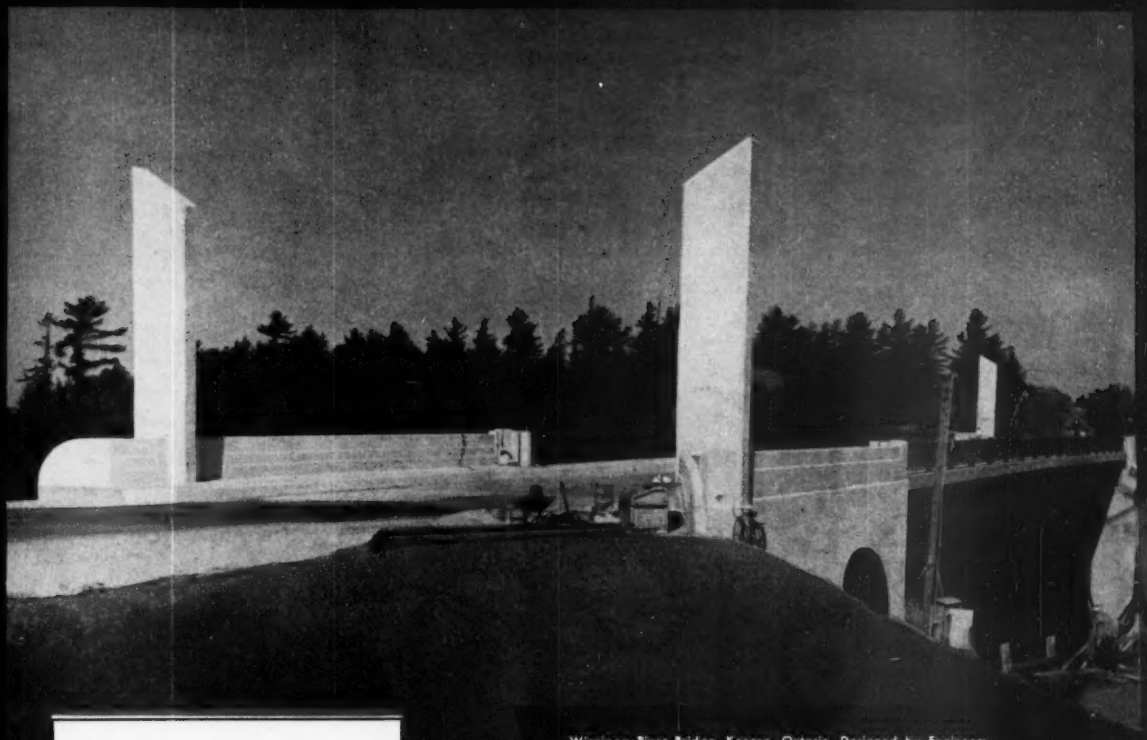
• **A headache**—And if he had done that, there would have been more weeping and wailing—this time from the Hetz Auction Sales. They made no contract with Smith other than a percentage of actual sold items. If he did decide to junk the idea, their time and money for overhead, advertising and other items would have gone up in smoke.

Smith himself was everywhere—on the stand with the auctioneer one minute, mingling with the crowd the next, or sitting disconsolately on a tractor. Sparks flew everywhere.

One such spark came from a Milwaukee representative who wanted a bunch of Lincoln 200-amp welding machines. There were 26 in all, and the bids were unit prices for any one or any combination of the 26. The bidding reached $350 when the gentleman from Wisconsin shouted to the crowd: "Don't jump my bid any higher, you guys. I'll sell you any you want later for the same three fifty." "No kibitzing" came the warning from Hetz, who passed off this and other remarks jokingly by warning that any sub-sales would rate a commission for him, too.

• **Experience**—With the experience gained from this auction, Smith will decide whether or not to repeat the proceedings in his hometown yards at Fort Worth. By 5 PM close to three hundred items had been offered, bid on, and recorded for definite decision. By the week's end over 70% had been approved and a great deal of it was already in transit.

Future auctions—if there are any—should be conducted a little smoother as the result of experiences derived from this fracas. A method will have to be devised, however, whereby some of the uncertainty of sale approval will be removed, with some protection retained for the owner. Perhaps, as one contractor said, acceptance or rejection immediately after the bid might be the answer.



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The State of Texas recently demonstrated how this can be done in a project involving the improvement of 20 miles of heavily traveled U. S. 90 between Houston and Beaumont. The State Highway Department widened the existing 20-feet-wide concrete pavement to 24½ feet, using hot-mix, hot-laid Texaco Asphaltic Concrete, laid in four courses to a compacted thickness of 10 inches. Over the full width of widened highway, 3½ inches of resilient, heavy-duty Texaco Asphaltic Concrete was then laid in three courses.

By this method, which effects a substantial saving over entirely new construction, Texas has successfully speeded the flow of traffic on U. S. 90, with greatly increased safety and riding comfort.

Two helpful booklets describing all types of Asphalt construction can be obtained by writing our nearest office.

PHOTOGRAPHS show method of laying and compacting 4½-foot-wide Texaco Asphaltic Concrete addition to old pavement, laid in four courses totaling 10 inches thick. Other photos show the 3½-inch Texaco Asphaltic Concrete wearing surface under construction. Bottom photo shows completed project, except for shoulders and striping. Traffic averages 5,700 vehicles a day, 31 percent of them commercial.

Contractor: Gulf Bitulithic Company of Houston, Texas.

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